

**ABET
Self-Study Report**

Computer Science and Engineering

**Donald Bren School of Information and Computer Sciences
and
The Henry Samueli School of Engineering
University of California, Irvine
Irvine, CA 92697**

June 2013

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BACKGROUND INFORMATION

A. Contact Information

List name, mailing address, telephone number, fax number, and e-mail address for the primary pre-visit contact person for the program.

The primary pre-visit contacts are the Chairs, Michael Green and TBD (chair of Computer Science).

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B. Program History

Include the year implemented and the date of the last general review. Summarize major program changes with an emphasis on changes occurring since the last general review.

Computer Science and Engineering (CSE) was implemented in 2004 when the first class of freshmen entered the program. The date of the last general review was 2011-2012. In 2012, the computer language used for first year instruction changed from Java to Python and the two-course advanced technical course requirement was changed from tracks to selected electives.

C. Options

List and describe any options, tracks, concentrations, etc. included in the program.

To add depth of experience, students must complete two technical elective courses from a specified list. See <http://www.editor.uci.edu/catalogue/idp/idp.1.htm#cse>

D. Organizational Structure

Using text and/or organizational charts, describe the administrative structure of the program (from the program to the department, college, and upper administration of your institution, as appropriate).

The CSE undergraduate program is administered by a joint steering committee formed from two departments. The CSE Steering Committee meets regularly once a month. The CSE Steering Committee consists of six faculty, an undergraduate student, the two department chairs, the two schools' associate deans, academic counselors, and staff.

The faculty members consist of three from the Department of Computer Science (CS) in the Donald Bren School of Information and Computer Sciences and three from the Department of Electrical Engineering and Computer Science (EECS) in The Henry Samueli School of Engineering. The faculty members are appointed by the Chair of their respective departments for three-year rotating terms.

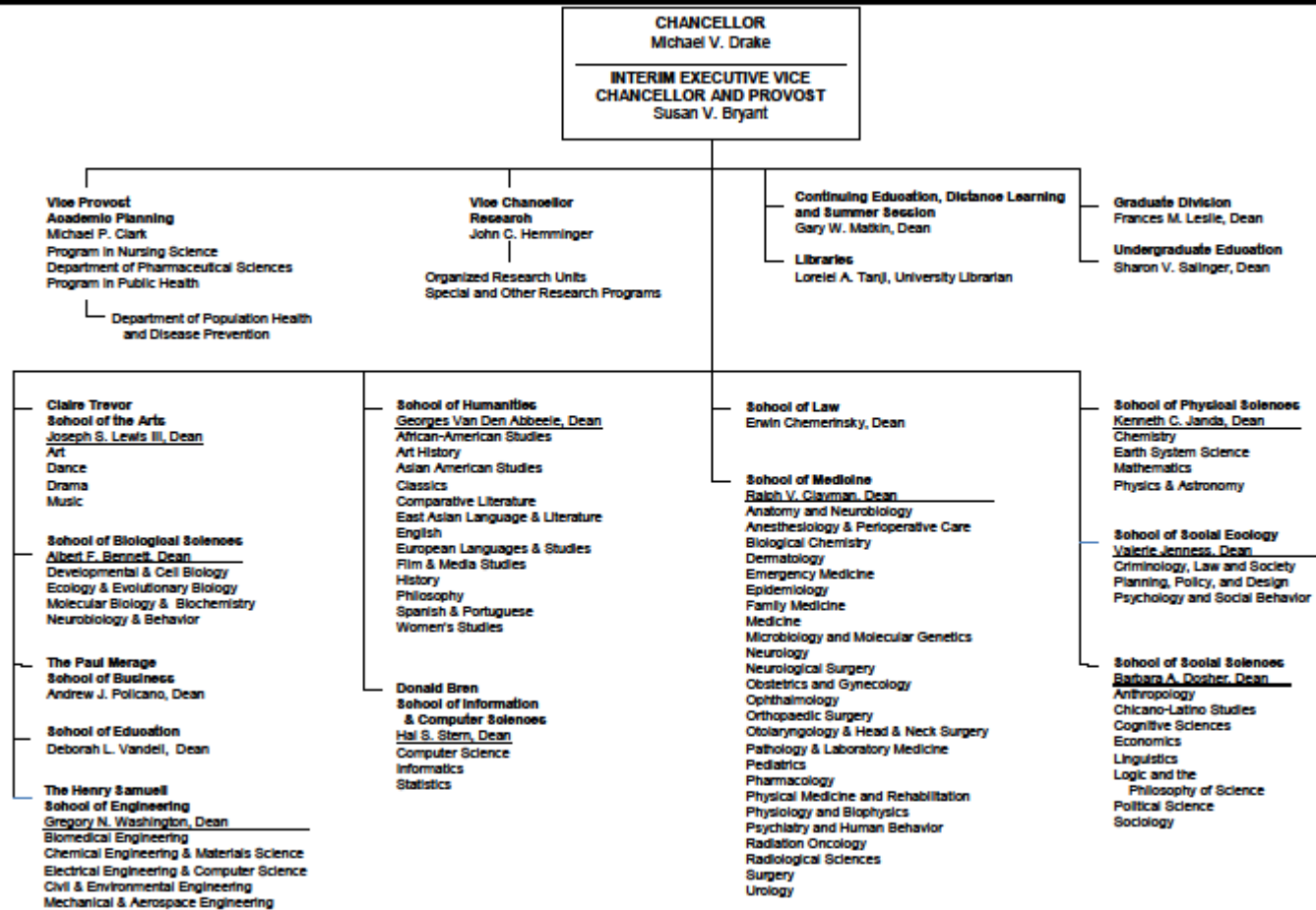
The CSE Steering Committee is convened by a Chair who serves a one-year term. The Chair is elected from and by the CSE Steering Committee faculty members. A Vice Chair, serving a one-year term, normally accedes to the Chair the following year. The Chair and Vice Chair may not be from the same academic unit. Two faculty members, one from each department, are appointed by their respective departmental chair to serve as Lead Faculty for the CSE program. The undergraduate CSE student is selected by the undergraduate student body of the CSE program and serves a one-year term.

Program changes published in the UCI General Catalogue must be approved by the CSE Steering Committee, majority vote by faculty in each of the two departments, Chairs of the two departments, and the deans of the two schools. School-approved changes are submitted to the Academic Senate for campus committee review and final approval.

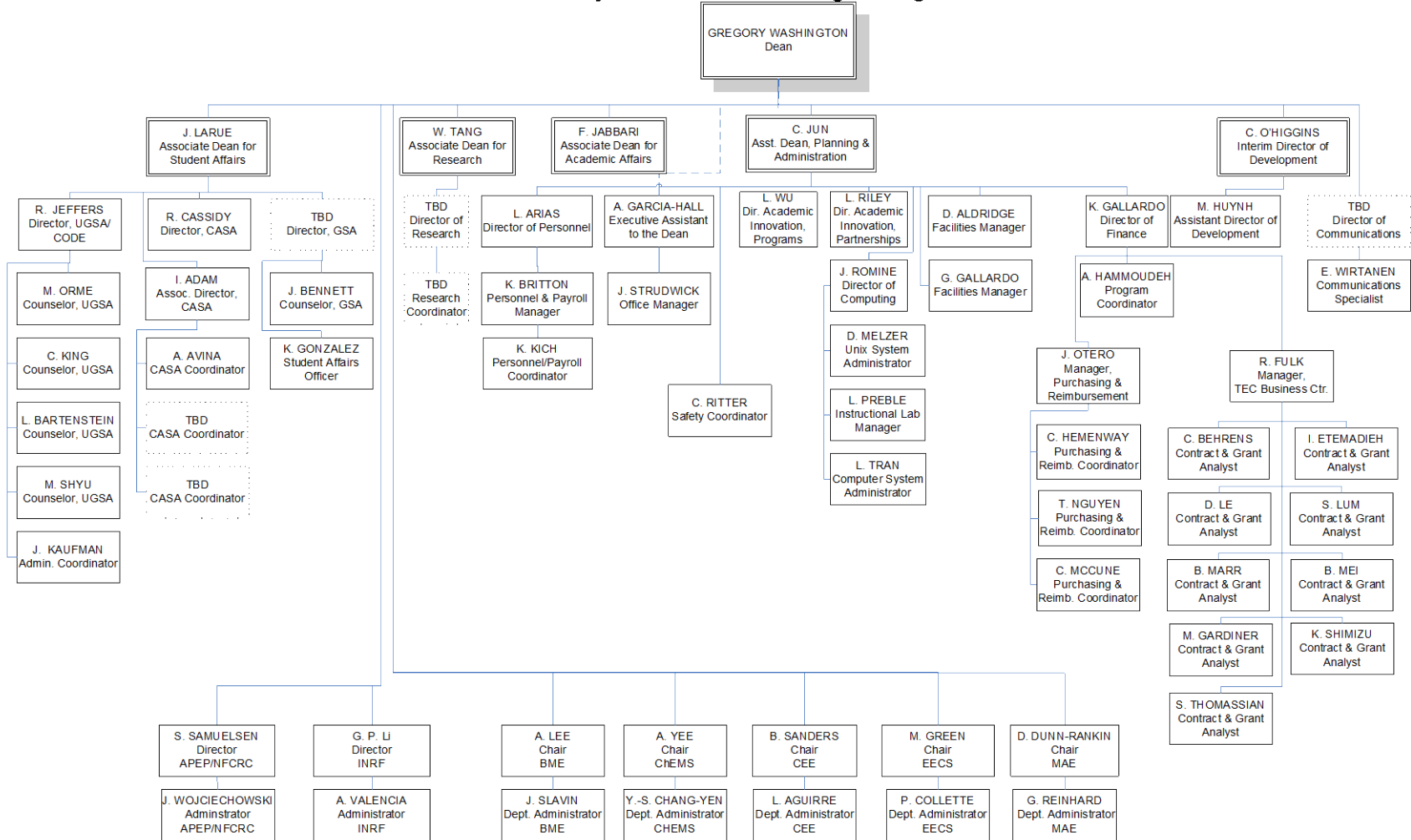
Organization charts are included on the following pages.

**ADMINISTRATIVE ORGANIZATION
UNIVERSITY OF CALIFORNIA, IRVINE**

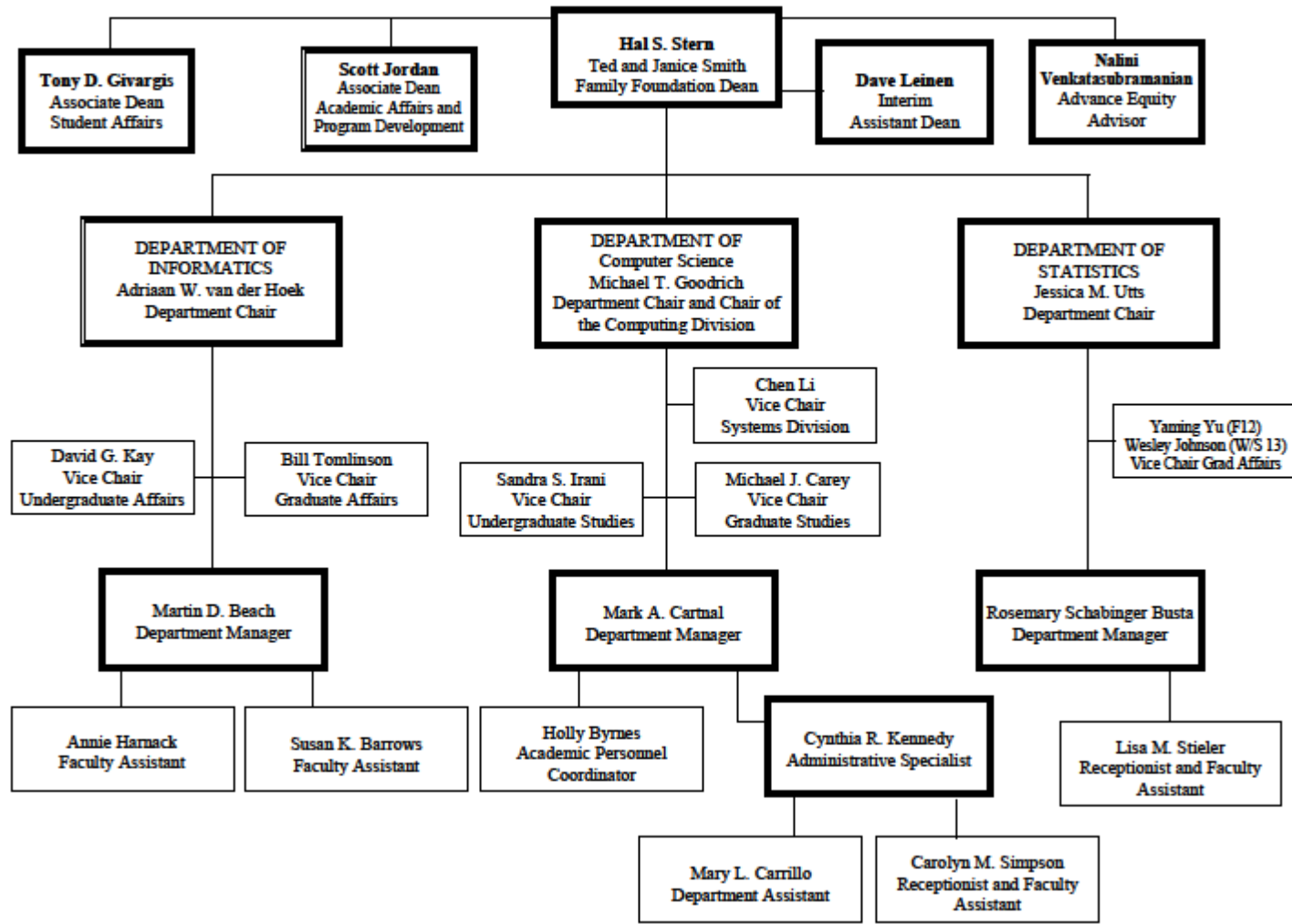
**Chart III
Academic Affairs – Academic Units
January 1, 2013**



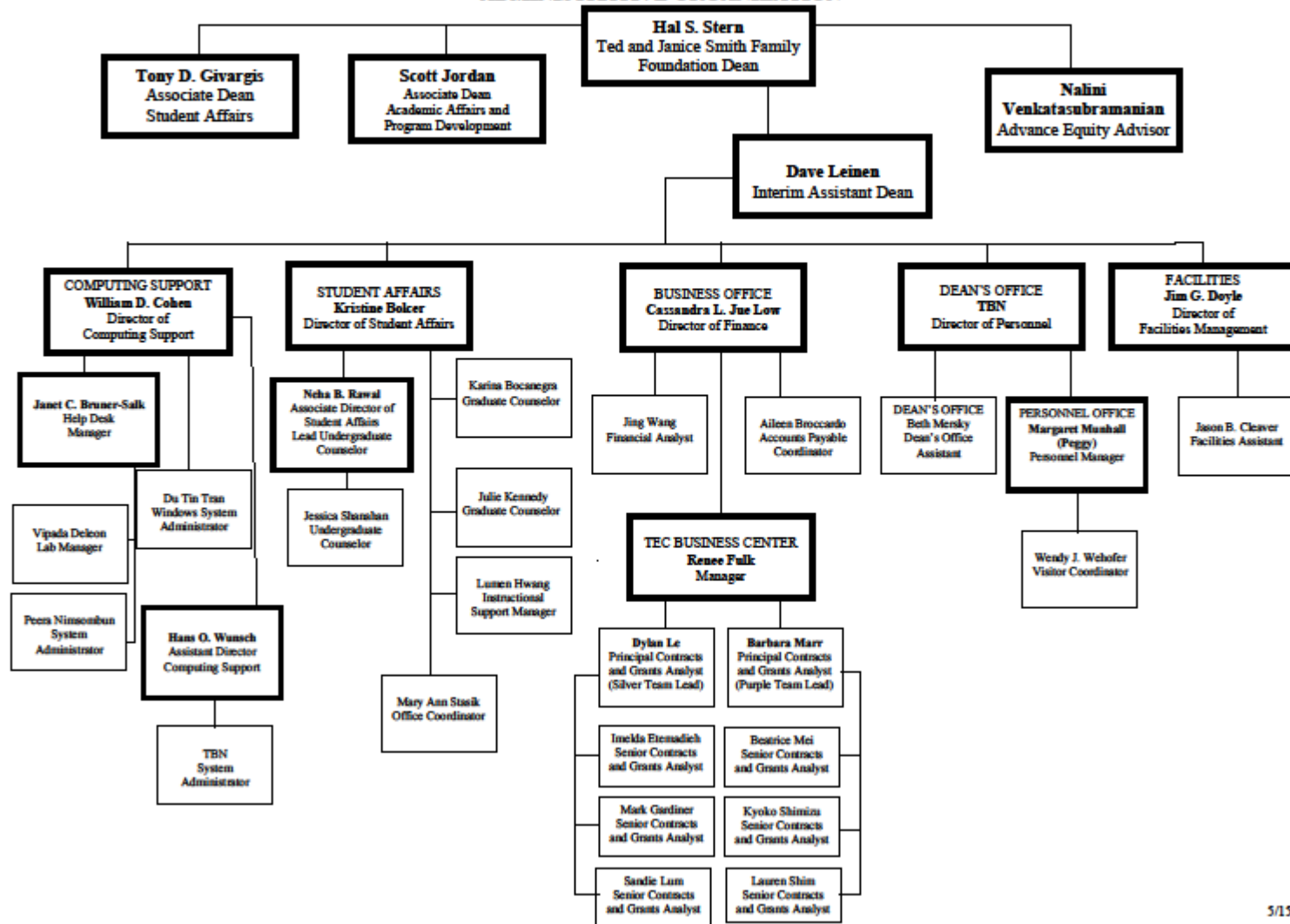
The Henry Samueli School of Engineering



**DONALD BREN SCHOOL OF INFORMATION & COMPUTER SCIENCES
ACADEMIC ORGANIZATION**



**DONALD BREN SCHOOL OF INFORMATION & COMPUTER SCIENCES
ADMINISTRATIVE ORGANIZATION**



5/15/2013

E. Program Delivery Modes

Describe the delivery modes used by this program, e.g., days, evenings, weekends, cooperative education, traditional lecture/laboratory, off-campus, distance education, web-based, etc.

Days; Traditional lecture/laboratory

F. Program Locations

Include all locations where the program or a portion of the program is regularly offered (this would also include dual degrees, international partnerships, etc.).

University of California, Irvine campus.

G. Deficiencies, Weaknesses or Concerns from Previous Evaluation(s) and the Actions Taken to Address Them

Summarize the Deficiencies, Weaknesses, and/or Concerns remaining from the most recent ABET Final Statement. Describe the actions taken to address them, including effective dates of actions, if applicable. If this is an initial accreditation, it should be so indicated.

The most recent ABET Final Statement noted no deficiencies or weaknesses. One concern was noted: continued development, especially the planned growth of the program, may become subject to limitations imposed by budget constraints.

H. Joint Accreditation

Indicate whether the program is jointly accredited or is seeking joint accreditation by more than one commission.

The Computer Science and Engineering undergraduate program is jointly accredited by the Computer Accreditation Commission (CAC) and the Engineering Accreditation Commission (EAC).

GENERAL CRITERIA

CRITERION 1. STUDENTS

For the sections below, attach any written policies that apply.

UCI University Registrar's Official Notes & Policies can be found on-line at:
<http://www.reg.uci.edu/navigation/policies.html>

A. Student Admissions

Summarize the requirements and process for accepting new students into the program.

Below is a summary of the requirements and processes for accepting new students into the Computer Science and Engineering undergraduate program. The complete undergraduate admissions policy of the University of California can be found on-line:

<http://www.editor.uci.edu/catalogue/intro/intro.9.htm#freshman>

Admission as a Freshman Applicant

The undergraduate admissions policy of the University of California is guided by the University's commitment to serve the people of California and throughout the world, from every culture and ethnicity and from across the economic spectrum. The University's admission requirements described in detail in the Minimum Admission Requirements for Freshmen section, are designed to ensure that students are adequately prepared for University-level work. Meeting admission requirements entitles an applicant to be considered for admission but does not constitute an offer of admission.

In recent years, the number of freshman applicants to UC Irvine has exceeded the number of spaces available. Since the campus cannot admit all eligible applicants, it must use standards that are more demanding than the minimum UC requirements to select students. These standards, which the University calls selection criteria, are used to identify applicants who have demonstrated the highest academic achievement and who have a variety of other qualities that can contribute to the strength and diversity of the campus community.

In the case that UCI is unable to accommodate all qualified applicants in their first-choice major, those students who indicate a valid alternate major may be offered admission in that major. Students who wish to change their major after enrolling at UCI must submit an Undergraduate Petition for Change of Major to the academic counseling office in the school or program of their prospective major.

ADMISSIONS SELECTION

UCI seeks to select students who have a demonstrated record of academic and personal achievement. The primary criterion for admission to UCI is academic excellence, including the number of college preparatory courses completed; the level of achievement in these courses, including honors, Advanced Placement, International Baccalaureate, and college

courses completed; and the quality of the senior-year program as measured by the type and number of academic courses in progress or planned. Also considered are the high school grade point average (GPA) calculated on UC-specified subjects (UCI uses a maximum of eight honors grade points in determining the UC GPA) and the required standardized national examinations.

The level of performance needed to gain admission varies from year to year depending on the size and the academic quality of the applicant pool and the number of enrollment spaces.

A secondary criterion in UCI's selection process is personal achievement outside the classroom. A range of pursuits is considered, including academic activities, the creative and performing arts, community service and leadership, athletics, participation in pre-collegiate programs that develop academic ability, and other extracurricular activities. Persistence counts more than scattered involvement, while initiative and curiosity are also important.

The admissions process at UCI is also sensitive to individual circumstances and the effect these may have had on the resources available to and the experiences of applicants. While all applications receive careful consideration, reviewers take note of any extenuating circumstances and/or a variety of cultural and economic situations, including students who are the first in their families to attend college, who have a low family income, or who have worked in support of their family during high school. The emphasis, however, is less on the personal circumstances of the applicant and instead is more focused on how the applicant has responded to challenges while achieving academic success.

Each application is read at least twice. Every attempt is made to become familiar with the unique accomplishments of each applicant.

Engineering: Applicants to any of the Engineering majors must complete four years of high school mathematics through pre-calculus or math analysis and are advised to have completed one year each of physics and chemistry. Applicants are strongly encouraged to take and submit the Math Level 2 SAT Subject Test. Students specifically interested in the Computer Science and Engineering major are also advised to have one semester of programming course work.

MINIMUM ADMISSION REQUIREMENTS FOR FRESHMEN

The University defines a freshman applicant as a student who is currently in high school or has graduated from high school but has not enrolled in a regular session at a college or university after high school graduation. Summer sessions are excluded in the determination.

Freshman applicants who are not residents of California should refer to the Nonresident Admission Requirements section. Applicants who do not meet the requirements for admission at the time of high school graduation may be considered for admission after they meet the requirements for admission as a transfer applicant (see Admission as a Transfer Applicant). Transfer credit will be granted for an acceptable course from an accredited

college or university taken while still in high school if reported on a valid transcript issued by the college which conducted the course.

The requirements described below represent the minimum academic standards students must attain to be considered for admission to the University. Meeting minimum admission requirements does not guarantee admission. Admission to UCI and the program of choice often requires students to meet more demanding standards.

Subject Requirement

To satisfy the subject requirement, students must complete a minimum of 15 yearlong UC-approved college-preparatory courses with at least 11 finished prior to their senior year. These courses are also known as the "a-g" subjects/courses. (A one-year course is equal to one unit; a one-semester course is equal to one-half unit.) A grade point average (GPA) of 3.0 or better must be earned (3.4 if the student is a nonresident) in these courses with no grade lower than a C.

The 15 required "a-g" courses are:

a. History/Social Science: 2 years required. Two years of history/social science, including one year of world history, cultures, and geography (may be a single yearlong course or two one-semester courses); and one year of U.S. history or one-half year of U.S. history and one-half year of civics or American government.

b. English: 4 years required. Four years of college-preparatory English that include frequent writing, from brainstorming to final paper, as well as reading of classic and modern literature. No more than one year of ESL-type courses can be used to meet this requirement.

c. Mathematics: 3 years required; 4 years recommended. Three years of college-preparatory mathematics that include the topics covered in elementary and advanced algebra and two- and three-dimensional geometry. Approved integrated math courses may be used to fulfill part or all of this requirement, as may math courses taken in the seventh and eighth grades if the high school accepts them as equivalent to its own courses.

d. Laboratory Science: 2 years required; 3 years recommended. Two years of laboratory science providing fundamental knowledge in at least two of these three foundational subjects: biology, chemistry, and physics. The final two years of an approved three-year integrated science program that provides rigorous coverage of at least two of the three foundational subjects may be used to fulfill this requirement.

e. Language Other Than English: 2 years required; 3 recommended. Two years of the same language other than English. Courses should emphasize speaking and understanding, and include instruction in grammar, vocabulary, reading, composition and culture. American Sign Language and classical languages, such as Latin and Greek, are acceptable. Courses taken in the seventh and eighth grades may be used to fulfill part or all of this requirement if the high school accepts them as equivalent to its own courses. (Students are strongly

encouraged to complete three or four years of one language in preparation for the UCI Language Other Than English and/or the International/Global Issues general education requirements.)

f. Visual and Performing Arts (VPA): 1 year required. One yearlong course of visual and performing arts chosen from the following: dance, drama/theatre, music, or visual art.

g. College Preparatory Elective: 1 year required. One year (two semesters), in addition to those required in "a-f" above, chosen from the following areas: visual and performing arts (non-introductory-level courses), history, social science, English, advanced mathematics, laboratory science, and language other than English (a third year in the language used for the "e" requirement or two years of another language).

Courses Satisfying the "g" Requirement

History: All history courses should require extensive reading and writing. Courses should enable students to establish a breadth of understanding of history (for example, world history, political history, or economic history) and should provide an understanding of the human past, including its relation to the present. Courses should develop a student's critical thinking, ability to evaluate historical data, and ability to analyze and synthesize evidence.

Social Science: Courses should be in one of the social sciences: anthropology, economics, geography, political science, psychology, or sociology, or, alternatively, courses should be interdisciplinary, drawing knowledge from two or more of these fields. Course objectives should include as many of the following as are applicable to the field: (1) to understand the development and basic features of major societies and cultures; (2) to examine the historic and contemporary ideas that have shaped the world; (3) to understand the fundamentals of how differing political and economic systems function; (4) to examine the nature and principles of individual and group behavior; and (5) to study social science methodologies.

In order to develop a student's critical thinking, ability to evaluate ideas and information, and ability to analyze and synthesize qualitative and quantitative evidence in the laboratory and in the field, a social science course must include a body of basic knowledge, extensive reading, and written and oral exposition.

Courses which are designed to meet state-mandated social studies graduation requirements are acceptable provided that they meet the above criteria. Courses of an applied, service, or vocational character are not acceptable social science electives.

English: All English courses should require substantial reading with frequent and extensive practice in writing which is carefully evaluated and criticized. A course in creative writing, journalism, speech, or debate is acceptable if it meets the general requirements in reading and writing stated above. An advanced-level course in English as a Second Language (ESL) or English Language Development (ELD) may be acceptable provided it meets the standards outlined under the "b" requirement.

Advanced Mathematics: Acceptable electives are courses in mathematics with second-year algebra as a prerequisite such as trigonometry, linear algebra, precalculus (analytic geometry and mathematical analysis), calculus, and probability and statistics.

A computer science course is an acceptable mathematics elective if it fulfills the following objectives. The course should enable each student to express algorithms in a standard computer language such as C++, Pascal, Java, BASIC, FORTRAN, or COBOL. By the end of the course, each student should complete substantial programming projects in the language used. The course should also involve the study and mastery of various aspects of computer science: how computers deal with data and instructions, the internal components of a computer, and the underlying computer logic.

Laboratory Science: Acceptable courses should cover topics from the biological or physical sciences in which students make their own observations and measurements and analyze these data to obtain further information.

An introductory science course normally offered in the ninth grade, (such as earth science or physical science) is an acceptable science elective provided it is designed to prepare students for laboratory science courses in the tenth grade and beyond. The course must provide an introduction to the fundamental principles of physical and/or biological science. Laboratory activities as defined above shall be included. (A terminal course designed only to meet graduation requirements is not an acceptable science elective.)

Language Other Than English: It is recommended that elective courses be in the same language used to satisfy the language other than English "e" subject requirement. Elective courses in this language must have at least two years of the language as a prerequisite. In order for a second language to qualify as an elective, at least two years of this language must be completed.

Visual and Performing Arts: Courses in this area consist of instruction in dance, drama/theatre, music, and visual arts. Courses should enable students to understand and appreciate artistic expression and, where appropriate, to talk and write with discrimination about the artistic material studied.

Courses devoted to artistic performance and developing creative artistic ability should have prerequisites (either one year of introductory course work or experience approved by the instructor) and should assume proficiency beyond the introductory level.

Courses must require on average the equivalent of a five-period class per week. Work outside of class must be required; for example, portfolio/performance preparation, reading, writing, research projects, and/or critical listening/viewing.

Dance courses offered for physical education credit or under any other departmental arrangement are acceptable provided they include content satisfying the above criteria.

Courses which are primarily athletic or body conditioning are not acceptable visual and performing arts electives.

College Preparatory Elective: The general objectives of the "g" requirement are to improve students' analytical abilities, promote artistic development, and strengthen oral and written skills. The requirement is intended to encourage prospective University students to fill out their high school programs with courses that (1) strengthen general study skills, particularly analytical reading, expository writing, and oral communication; (2) provide an opportunity to begin work that could lead directly into a major program of study at the University; (3) experience, at some depth, new areas of academic disciplines that might form the basis for future major or minor studies at the University.

Courses that fulfill the "g" requirement should allow students to prepare for college-level work in the subject area, so that the level attained at the end of such courses would be well beyond the introductory or survey level. Courses that have narrow objectives aimed at meeting specific societal or personal lifestyle goals are not acceptable.

California High School Students. Courses taken to fulfill the subject requirement must be certified by the University as meeting the requirement and must be included on the UC-certified course list of the school the student attended. The high school counselor or principal will have a copy of this list. In addition, the lists are available online at <http://www.ucop.edu/doorways>.

Out-of-State High School Students. The UCI Office of Admissions and Relations with Schools will review and accept courses that meet the requirements for applicants graduating from out-of-state schools.

B. Evaluating Student Performance

Summarize the process by which student performance is evaluated and student progress is monitored. Include information on how the program ensures and documents that students are meeting prerequisites and how it handles the situation when a prerequisite has not been met.

In addition to annual review, academic advisors and faculty perform periodic informal checks on course equivalency when equivalency is suspect due to academic performance. When student performance at UCI does not match what was expected based on performance at other institutions, an additional equivalency check is often performed.

UCI policy states that students must earn a 2.0 GPA each quarter. Students with GPAs below 1.5 for one quarter, or two quarters below 2.0 are subject to dismissal. An average minimum 2.0 GPA in all courses, all major courses, and all upper-division major courses are required for degree certification. Normal student progress is measured against these minimums.

For some CSE, math, and basic science courses, minimum grades in prerequisite courses are required to continue in the course sequence. Typically this is either a 'C' or 'C-' grade.

The program ensures that students are meeting prerequisites through an automated prerequisite checking system during the enrollment process. The system reviews each student's transcript and prevents enrollment if prerequisites have not been met. Academic advisors and faculty may request authorization into a course if a student has taken a) an approved equivalent course as a prerequisite, b) an exam, oral or written, proving s/he has satisfied the prerequisite course content, or c) another means of assessment proving that s/he has satisfied the prerequisite course content. These exceptions are documented on a Prerequisite Substitution form.

C. Transfer Students and Transfer Courses

Summarize the requirements and process for accepting transfer students and transfer credit. Include any state-mandated articulation requirements that impact the program.

Admission as a Transfer Applicant

The University defines a transfer applicant as a student who has completed high school and who enrolled in a regular session at a college or university after high school. (Summer sessions do not count.) UCI considers a California community college transfer applicant as a student who has completed at least 30 semester units/45 quarter UC-transferable units at one or more California community colleges (see full definition above). A transfer applicant may not disregard the college record and apply for admission as a freshman. (Transfer applicants who are not residents of California should also refer to the section on Nonresident Admission Requirements.)

The complete undergraduate admissions policy for Transfer Students can be found on-line: <http://www.editor.uci.edu/catalogue/intro/intro.10.htm#transfer>

Transfer Admission Guarantee: UCI's Transfer Admission Guarantee (TAG) program offers provisional admission to well-qualified junior-level students from participating California community colleges. Although admission to UCI is selective in most majors, through TAG, admission can be guaranteed for transfer students who meet the TAG Eligibility and major prerequisites requirements (see TAG Selection Guidelines later in this section).

Selection Criteria

UCI attempts to accommodate as many qualified transfer applicants as possible. Priority consideration for admission of transfer applicants is given to junior-level applicants (with a minimum of 60 semester/90 quarter units of UC-transferable credit) from California community colleges and is based upon: (1) GPA in transferable courses; (2) depth of preparation toward general education and major requirements; and (3) participation in the TAG (Transfer Admission Guarantee) program, which requires early completion of one transferable English composition course, and one transferable course in mathematical concepts and quantitative reasoning. *TAG Applicants for fall quarter 2013 admission must have completed the first English and one mathematics course by the end of summer 2012. The second English course must be completed by spring 2013.* Transfer applicants with the strongest academic performance will be the most competitive for admission. Junior transfers

from four-year colleges, including other UC campuses, and lower-division transfers will be considered as space permits.

In the case that UCI is unable to accommodate all qualified applicants in their first-choice major, those students who indicate a valid alternate major may be offered admission in that major. Students who wish to change their major after enrolling at UCI must submit an Undergraduate Petition for Change of Major to the academic counseling office in the school or program of their prospective major. This is of particular importance to those who apply in majors which are subject to additional course prerequisites and/or have a limit placed on the number of applicants admitted into the major. (See the following list.)

A secondary criterion in UCI's transfer selection process is based upon consideration of the academic criteria in conjunction with the following personal achievement criteria: an exceptionally challenging curriculum; outstanding accomplishments relevant to academic aims; hardships or unusual circumstances the applicant has faced, and the ways in which the student has responded to these challenges; a strong, thoughtful match between UCI's programs and the student's academic and career objectives, preparation, talents, and skills; and potential contributions to the campus. The level of performance needed to gain admission varies from year to year depending on the size and the academic quality of the applicant pool and the number of enrollment spaces.

Computer Science and Engineering: Students are encouraged to complete as many of the lower-division degree requirements as possible prior to transfer, including one year of approved calculus; one year of calculus-based physics with laboratories (mechanics, electricity and magnetism); one year of transferable computer science courses involving concepts such as those found in Java, Python, Scheme, C++, or other object-oriented or high-level programming language; and one additional approved transferable course for the major (an approved math, science, or CSE course).

Additional computer science courses beyond the two required are strongly recommended, particularly those that align with the major of interest. Java and C++ are used in the curriculum; therefore, transfer students should plan to learn these languages by studying on their own or by completing related programming courses prior to their first quarter at UCI.

Students who enroll at UCI in need of completing lower-division course work may find that it will take longer than two years to complete their degrees. For further information, contact the Donald Bren School of Information and Computer Sciences at (949) 824-5156 or The Henry Samueli School of Engineering at (949) 824-4334.

Transfer Student Admission Requirements

The transcript submitted from the last college attended must show, as a minimum, that the student was in good standing and had earned a GPA of 2.4 (2.8 for nonresidents) or better in all transferable course work. Required for all Computer Science and Engineering majors:

- Complete 60 semester or 90 quarter units of UC transferable credit by the end of the spring term prior to the fall quarter of enrollment
- Meet all course requirements of UC admission with a minimum grade of C or better

- Have a cumulative UC transferable GPA of 2.8 (3.4 for **TAG**)
- Have a cumulative GPA of 3.0 in required courses
- Complete one year of approved calculus
- Complete one year of calculus-based physics with labs (mechanics, electricity and magnetism)
- Complete one year of transferable computer science courses involving concepts such as those found in Java, Scheme, C++, or other object-oriented, high-level programming language
- Complete one additional approved transferable course for the major (an approved course in data structures, software engineering, discrete mathematics, Boolean algebra, or linear algebra)

Transfer Credit

Articulation agreements are created via ASSIST. ASSIST is an online student-transfer information system that shows how course credits earned at one public California college or university can be applied when transferred to another. ASSIST is the official repository of articulation for California's public colleges and universities and provides the most accurate and up-to-date information about student transfer in California. For details, see: <http://www.assist.org/web-assist/welcome.html>. Courses from other institutions not articulated by ASSIST are reviewed and must be approved by Faculty Advisors for course equivalency. Faculty review course materials such as syllabi, exams, projects and papers.

D. Advising and Career Guidance

Summarize the process for advising and providing career guidance to students. Include information on how often students are advised, who provides the advising (program faculty, departmental, college or university advisor).

Academic Advising

The Student Affairs Offices in The Henry Samueli School of Engineering and in the Donald Bren School of Information and Computer Sciences perform routine academic advising. The academic advisors are responsible for ensuring that students are properly advised with respect to degree requirements, course offerings, prerequisites, minimum grade requirements, and progress toward degree. Students are individually advised at least annually, and are recommended to meet with a staff advisor quarterly. In conjunction with faculty advising and the UCI career center, students also receive advising on internships, career options, professional licensure, and advanced degree options.

The CSE Steering Committee faculty members also advise the students in the CSE program. The CSE Steering Committee is comprised of faculty from the Department of Computer Science in the Bren School of ICS and from the Department of Electrical Engineering and Computer Science in The Henry Samueli School of Engineering. Advising sessions are held in February each year, during the Winter Quarter, and are mandatory for all students earning a degree in CSE. Each student is required to attend a 60-minute advising session, hosted by faculty, once a year. If they miss the primary session, a make-up session is offered. During the advising sessions, the faculty members discuss the Computer Science and Engineering program educational objectives and student outcomes, and the CSE curriculum in general,

especially courses required for the degree and the design element of said courses. The faculty also provide an overview of the field of CSE with relation to other majors; program objectives; Sample Program of Study; undergraduate Research (UROP, UC Leads, etc.); industry perspective; career paths; as well as providing the students an opportunity to give feedback and ask questions. In addition to faculty advising in this group setting, students in the CSE program may request to meet with the Chair of the CSE Steering Committee at any time during the year.

Each quarter, all records are reviewed to ensure that students are making normal progress toward their degree, both in terms of completing courses in a timely manner and maintaining an appropriate minimum GPA and grades. Students not making normal progress receive additional advising and must complete a contract to return to good standing or be asked to leave the school. In addition, the school receives reports from the campus on student course repetition, violations of unit policy (too many or too few), and failure to complete campus requirements in a timely basis. Students that fail to resolve these issues may be placed on a Contract for Students Subject to Disqualification (see next page). An example of an academic contract is reproduced on the following page.

Contract for Students Subject to Disqualification

The Henry Samueli School of Engineering

University of California, Irvine

Contract to Continue in Engineering	<p>Student ID: Name: _____ Contract Expires: _____</p> <p>For each term the contract is in effect:</p> <ul style="list-style-type: none"> A. Student must take a full course load (12 units) with at least one engineering related course. Student must follow the program of study as outlined by their academic counselor – any changes to the outlined program must be approved by the counselor. B. All courses must be taken for a letter grade unless offered Pass/No Pass Only. C. Earn a C or better in each course (C- or less violates this contract). D. Earn an overall quarterly GPA of _____ or better. E. Use campus resources, follow the engineering study guidelines and maintain a weekly study/activity log. F. _____ <p>This contract includes a gpa standard higher than the minimum 2.0 due to history of low academic performance – demonstrated consistency of performance at this higher level is required to show a probability for success in Engineering at UCI. Failure to meet the terms of this contract requires the student to establish a Contract to Exit Engineering. If this contract is violated, disqualification may result after one quarter for failure to either complete an appeal process or sign the contract to Exit Engineering.</p> <p>My signature below indicates I understand and agree with the conditions of this contract to continue studies in Engineering.</p> <p>Student Signature: _____ Date: _____</p>
Contract to Exit Engineering	<p>Student ID: Name: _____ Contract Expires: _____</p> <p>For each term the contract is in effect:</p> <ul style="list-style-type: none"> A. Student must take a full course load (12 units) and follow a program of study to facilitate a change of major at UCI or transfer to another college/university. Program must meet criteria for change of major/transfer – academic counselor will approve plan.. B. All courses must be taken for a letter grade unless offered Pass/No Pass Only. C. Earn a C or better in each course (C- or less violates this contract). D. Earn an overall quarterly GPA of _____ or better. E. Follow the approved plan to change majors or transfer & gain acceptance to new major/college by the contract end date. F. _____ <p>This contract includes a gpa standard higher than the minimum 2.0 due to history of low academic performance – demonstrated consistency of performance at this higher level is required to achieve a change of majors/transfer. Failure to meet the terms of this contract, and/or failure to achieve a change of major or transfer by the expiration date of this contract, may result in immediate disqualification. My signature below indicates I understand and agree with the conditions of this contract to continue studies at UCI but discontinue Engineering.</p> <p>Student Signature: _____ Date: _____</p>
Intent to Appeal	<p>Student ID: Name: _____</p> <p>My signature below indicates I violated the terms of the continuing contract and wish to appeal to remain in The Henry Samueli School of Engineering. I understand that I must submit my written letter of appeal to the Student Affairs Office within the first 3 weeks of the quarter.</p> <p>Failure to complete the appeal process (letter, interview & contract) will result in disqualification from the University at the end of the quarter.</p> <p>_____ Student Signature / Date</p> <p style="text-align: right;">_____ Contact Phone Number (to schedule appeal)</p>

The schools use a variety of tools including online and paper degree checks of all program, school, and campus requirements, electronic prerequisites checking for engineering courses, and a system of academic holds to ensure student compliance. Any variations to approved degree requirements must be approved by the faculty advisor for the program and is documented in writing in the student file.

Degree certification is based on the satisfactory completion of all requirements on the on-line program planner, **DegreeWorks** which is created and maintained by the University Registrar. **DegreeWorks** is the degree audit program for undergraduate students. This system applies coursework completed and in progress to the student's major degree requirements, and is used to monitor the student's progress toward their degree. Access is available 24/7 to the students and the undergraduate Academic Counselors. However, only the Academic Counselors can update or revise the information. **DegreeWorks** is a copyrighted software product owned by SunGuard and licensed for use by the UCI Registrar.

An Academic Counselor in either the HSSoE Student Affairs Office or the Bren:ICS Student Affairs Office verifies satisfactory completion of all requirements. A sample of a student view of DegreeWorks for the Computer Science and Engineering degree is reproduced on the following pages.

DegreeWorks
University Registrar
University of California, Irvine

Student View AC264525 as of 08/27/2012 at 15:27

Student	STUDENT, TEST ROBERT LEWIS	Level	Undergraduate
ID	31145117	Degree	B.S.
Classification	Freshman	School	Engineering
Grad App Status		Major	Computer Science and Engineeri
Overall GPA	3.300	Minor	

B.S. Degree

Academic Year: 2012-2013 **Credits Required:** 180

Credits Applied: 4

Unmet conditions for this set of requirements: 180 units are required to graduate. You still need 176 units.

36 of final 45 units must be earned in residence.

University Requirements Still Needed: See **University Requirements** section

General Education Requirements Still Needed: See **General Education Requirements** section

Requirements for one major Still Needed: See **Major in Computer Science and Engineering** section

Academic Year: 2012-2013

University Requirements

1 of Writing 37,39A,39AP,Core Wrt S/A,S/B (min C) Still Needed: 1 Class in **WRITING** 37 , 39A , 39AP , **HUMAN** 1ASA Title = HUMAN CORE WRT S/A@ , 1BSA Title = HUMAN CORE WRT S/B@

3 History or (1 History and 1 PolSci 21A) (min C) Still Needed: Choose from 1 of the following:
 History 40A, 40B, 40C (3 Classes in **HISTORY** 40A , 40B , 40C) or

PolSci 21A and one from History 40A, 40B, 40C) (2 Classes in **HISTORY** 40A , 40B , 40C , **POLSCI** 21A Including **POLSCI** 21A)

Academic Year: 2012-2013

General Education Requirements

1 Lower-Division Writing (minimum grade C) Still Needed: A two-course combination from one line.

Writing 39C plus 39B,37, or Human core writing

2 courses Human core writing including Human 1C

Human 1A or 1B

Human 1C

Writing 39B plus FIP

Writing 39B (min B) plus 30,31 or 38

Writing 37 (min B) plus 30,31 or 38

Transfer: 2 writing courses

I. Upper-Division Writing (minimum grade C)

Still Needed: Any upper-division writing course. See WebSOC for offerings.

II. Science and Technology

Still Needed: Choose from 1 of the following:

(3 Classes in **ARTS** 80, **BIOSCI** 1A, 5, 6, 9A, 9B, 9C, 9D, 9E, 9G, 9J, 9K, 9N, 10, 11, 12B, 12D, 16, 20, 25, 32, 35, 36, 37, 38, 42, 45, 55, 65, 75, H90, 93, 94, **CHEM** 1A, 1B, 1C, 12, H2A, H2B, H2C, H90, M3C, **CSE** 21, 22, 41, 42, 43, **DANCE** 3, 4, **EARTHSS** 1, 3, 5, 7, 11, 13, 15, 17, 19, H90, **ECON** 11, **I&CSCI** 4, 5, 6N, 8, 10, 11, 21, H21, 22, H22, 31, 32, 33, 51, 61, 77A, 77B, 77C, 77D, **IN4MATX** 41, 42, **LPS** 40, **MATH** 77A, 77B, 77C, 77D, **PHYSICS** 3A, 3B, 3C, 7C, 7D, 7E, 12, 14, 15, 16, 17, 18, 19, 20A, 20B, 20C, 20D, 21, H90, **PUBLHLS** 30, 60, 80, 90) or

(Transfer: 2 courses biological/physical science) or

(Transfer: 1 sequence Chem/Physics)

3 courses category II

Transfer: 2 semester category II courses

Transfer: 1 sequence Chem/Physics

III. Social and Behavioral Sciences

Still Needed: Choose from 1 of the following:

(3 Classes in **AFAM** 40A, 40B, 40C, **ANTHRO** 2A, 2B, 2C, 2D, 41A, **ASIANAM** 50, 51, 52, 53, **CHCLAT** 61, 62, 63, 64, **CRM/LAW** C7, **ECON** 1, 11, 13, 17, 20A, 20B, 23, **EDUC** 55, **ENGRCEE** 60, **EUROST** 10, 11, **HISTORY** 15C, **HUMAN** 55, **I&CSCI** 3, 11, 60, **INTLST** 11, 12, 13, 14, **LINGUIS** 3, 10, 20, 51, 68, **PHILOS** 22, **POLSCI** 6A, 6B, 6C, 21A, 31A, 41A, 44A, 51A, 61A, 71A, **PP&D** 4, **PSYCH** 7A, 9A, 9B, 9C, 21A, 46A, 56L, 78A, **PSYBEH** 9, 11A, 11B, 11C, **RELSTD** 17, 60, **SOCECOL** E8, H20A, H20B, H20C, **SOCIOL** 1, 2, 3, 23, 31, 62, 66, 78, **SOCSOCI** 1A, 2A, 5A, 5C, 5D, H1E, H1F, H1G, 40, 70C, 78A, 78B, 78C, **WOMNST** 60A, 60B, 60C) or

(Transfer: 2 category III courses)

3 courses category III

Transfer: 2 semester category III courses

IV. Arts and Humanities

Still Needed: Choose from 1 of the following:

(3 Classes in **AFAM** 40A, 40B, 40C, **ARTHS** 40A, 40B, 40C, 42A, 42B, 42C, 42D, **ARTS** 1, 11, 12, 80, **ARTSTU** 1A, 1B, 1C, 9A, 9B, 9C, **ASIANAM** 50, 51, 54, 55, **CLASSIC** 36A, 36B, 36C, 37A, 37B, 37C, 45A, 45B, 45C, **COMLIT** 8, 9, 10, 40A, 40B, 40C,

3 courses category IV

60A, 60B, 60C, **DANCE** 81, 90A, 90B, 90C, **DRAMA** 11, 15, 16, 20A, 20B, 20C, 40A, 40B, 40C, **EASIAN** 40, 55, **ENGLISH** 10, 28A, 28B, 28C, 28D, 28E, **EUROST** 10, 11, **FLM&MDA** 85A, 85B, 85C, **FRENCH** 50, **GERMAN** 50, **HISTORY** 12, 15A, 15C, 18A, 21A, 21B, 21C, 36A, 36B, 36C, 37A, 37B, 37C, 40A, 40B, 40C, 50, 60, 70A, 70B, 70C, 70D, 70E, 70F, **HUMAN 1A** Title = HUMANITIES CORE LEC, 1ASA Title = HUMAN CORE LEC S/A, H1A Title = HONORS HUM CORE LEC, 1B Title = HUMANITIES CORE LEC, 1BSA Title = HUMAN CORE LEC S/A, H1B Title = HONORS HUM CORE LEC, 1C Title = HUMANITIES CORE LEC, H1C Title = HONORS HUM CORE LEC, 10, 55, **LPS** 60, **MUSIC** 3, 4, 8, 9, 14A, 14B, 14C, 40B, 40C, 40D, 42, 44, 51, **PERSIAN** 50, **PHILOS** 1, 4, 5, 6, 7, 9, 10, 11, 12, 13, 23, **RELS TD** 5A, 5B, 5C, 90, **RUSSIAN** 50, **SOCSCI** 78A, **SPANISH** 50, **WOMNST** 20, 50A, 50B, 50C) or

(Transfer: 2 category IV courses)

Transfer: 2 semester category IV courses

V. Quantitative, Symbolic & Computat'l Reasoning

Still Needed:

Choose from 1 of the following:

Va.&Vb. Quant'tive, Symbolic &Computat'l Reasoning

(Choose from 3 of the following:) or

(1 Class in **ANTHRO** 10A, 10B, **CHEM** 1A, 1B, 1C, M3C, **CSE** 42, **EARTHSS** 1, 3, 5, 7, 15, 17, **ECON** 15A, 15B, **I&CSCI** 7, 32, 77A, 77B, 77C, 77D, **LPS** 31, **MGMT** 7, **MATH** 77A, 77B, 77C, 77D, **PHILOS** 31, **PHYSICS** 3A, 3B, 3C, 7C, 7D, 7E, 20A, 20B, 20C, 20D, **POL SCI** 10A, 10B, **PSYCH** 10A, 10B, **SOC ECOL** 13, **SOCSCI** 9A, 9B, 10A, 10B, **SOCIOL** 10A, 10B, **STATS** 7, 8, 67) and

(1 Class in **ANTHRO** 10C, **CSE** 21, 22, 41, 42, 43, 46, **EARTHSS** 19, **HUMAN** 55, **IN4MATX** 41, 42, 45, **I&CSCI** 6B, 6D, 6N, 21, 22, 31, 32, 33, 46, H21, H22, H23, **LINGUIS** 3, 10, 20, **LPS** 29, 30, **MATH** 2A, 2B, 2D, 2L, 4, 6G, H2D, **PHILOS** 29, 30, **POL SCI** 10C, **PSYCH** 10C, **SICSCI** 9C, 10C) and

(1 Class in **ANTHRO** 10A, 10B, 10C, **CHEM** 1A, 1B, 1C, M3C, **CSE** 21, 22, 41, 42, 43, 46, **EARTHSS** 1, 3, 5, 7, 15, 17, 19,

Va. Quantitative Literacy

Vb. Formal Reasoning

Va/Vb. One Additional Class

ECON 15A, 15B, **HUMAN** 55, **IN4MATX** 41, 42, 45, **I&CSCI** 7, 32, 77A, 77B, 77C, 77D, 6B, 6D, 6N, 21, 22, 31, 32, 33, 46, H21, H22, H23, **LINGUIS** 3, 10, 20, **LPS** 29, 30, 31, **MGMT** 7, **MATH** 2A, 2B, 2D, 2L, 4, 6G, H2D, 77A, 77B, 77C, 77D, **PHILOS** 29, 30, 31, **PHYSICS** 3A, 3B, 3C, 7C, 7D, 7E, 20A, 20B, 20C, 20D, **POLSCI** 10A, 10B, 10C, **PSYCH** 10A, 10B, 10C, **SOCECOL** 13, **SOCSCI** 9A, 9B, 9C, 10A, 10B, 10C, **SOCIOL** 10A, 10B, 10C, **STATS** 7, 8, 67)

(Transfer: math, CIS, AP CompSci AB exam)
or

(Transfer: 2 category V courses)

Transfer: math, CIS, AP CompSci AB exam

Transfer: 2 semester category V courses

VI. Language Other Than English

Still Needed:

1 Class in **ARABIC** 1C, S1BC, **CHINESE** 1C, S1BC, **FRENCH** 1C, S1BC, **GERMAN** 1C, S1BC, **GREEK** 1C, S1BC, **HEBREW** 1C, **HINDI** 1C, **ITALIAN** 1C, S1BC, **JAPANESE** 1C, S1BC, **KOREAN** 1C, S1BC, **LATIN** 1C, S1BC, **PERSIAN** 1C, S1BC, **PORTUG** 1C, **RUSSIAN** 1C, **SPANISH** 1C, S1BC, **VIETMSE** 1C, S1BC

VII. Multicultural Studies

Still Needed:

1 Class in **AFAM** 40A, 40B, 40C, **ANTHRO** 85A, 128B, 134M, 136K, 137A, 138T, 161T, 162B, **ARTSTU** 149, **ASIANAM** 50, 52, 53, 54, 55, 143, **CHC/LAT** 61, 62, 63, 64, 65, 102, 102W, 114, 116, 137, 138, 142, 151, 152A, 153, 154, 155, 158, 160, 163, 168, 170, 171, 176, 177, 178, 182, 183, **COMLIT** 9, **CRMLAW** C156, C158, C161, C171, C172, **EDUC** 104E, 124, 143B, 155, 182, **HISTORY** 15A, 15C, **HUMAN** 1C Title = HUMANITIES CORE LEC, H1C Title = HONORS HUM CORE LEC, **INTLST** 177B, **LINGUIS** 2, **MUSIC** 78A, 78B, **PP&D** 172, **POLSCI** 61A, 124A, 124B, 126C, **PSYBEH** 192Q, 192R, 192S, **PSYCH** 174F, **SOCSCI** 70C, 78A, 78B, 78C, 165, 167, 170E, 173G, 173I, 173K, **SOCIOL** 51, 63, 65, 68A, 136, 161, 170C, **WOMNST** 20, 50A, 50B, 50C

VIII. International/Global Issues

Still Needed:

1 Class in **ANTHRO** 2A, 20A, 30A, 41A, 121A, 121D, 121G, 121J, 125A, 125B, 125X, 127A, 134A, 134G, 135A, 135I, 136A, 136D, 138O, 138P, 138Q, 162A, 163A, 163K, 164P, 174A, **ARABIC** 2A, 2B, 2C, S2AB, S2BC, **ARTHS** 40A, 40B, 40C, 42A, 42B, 42C, 42D, **ASIANAM** 51, **CHC/LAT** 115A, 115C, 130, 161, 178A, **CHINESE** 2A, 2B, 2C, 3A, 3B, 3C, 100A, 100B, 100C, 101A, 101B, 101C, 115, **COMLIT** 10, 40A, 40B, 40C, 60A, 60B, 60C, **CRMLAW** C191, **DANCE** 80, 82, 90A, 90B, 90C, **DRAMA** 40A, 40B, 40C, **EARTHSS** 15, 17, **EASIAN** 20, 40, 55, 110, 116, 117, 120, 130, 140, 150, 155, 160, 170, **ECON** 13, 152A, **EUROST** 10, 11, **FRENCH** 2A, 2B, 2C, 50, S2AB, S2BC, **GERMAN** 2A, 2B, 2C, 50, S2AB, S2BC, **HEBREW** 2A, 2B, 2C, **HISTORY** 18A, 21A, 21B, 21C, 50, 70A, 70B, 70D, 70E, 70F, **HUMAN** 10, **INTLST** 11, 13, 14, 111A, 113A, 121, 122, 130, 151A, 152A, 160, 161, 161A, 162, 164, 165, 166, 167, 168, 170, 171, 172, 173, 177C, 177E, 177F, 183E, **ITALIAN** 2A, 2B, 2C, **JAPANESE** 2A, 2B, 2C, S2AB, S2BC, 3A, 3B, 3C, 100A, 100B, 101A, 101B, 101C, 115, 180, **KOREAN** 2A, 2B, 2C, 3A, 3B, 3C

, 101A, 101B, 101C, 115, 180, **LINGUIS 1**, **MUSIC** 40B, 40C, 40D, 42, 44, **PERSIAN** 2A, 2B, 2C, 3A, 3B, 50, S2AB, S2BC, **PP&D** 140, **POLSCI** 6A, 41A, 42A, 43D, 44A, 141B, 141C, 141E, 142H, 143E, 146A, 151A, 151B, 151C, 151D, 151F, 152C, 152D, 152F, 153A, 153B, 153E, 154C, 154F, 154G, 155F, 156A, 157A, 172A, 172B, **PORTUG** 2A, 2B, 2C, **PUBLH** 168, **RELSTD** 5A, 5B, 5C, 60, **RUSSIAN** 2A, 2B, 2C, 50, **SOCECOL** E113, E127, **SOCS** 5D, 115H, 120, 152A, 170P, 173N, 173P, 173Q, 176A, 183E, 188A, 188B, 188C, 188D, 188E, 188F, 188G, 188H, 188I, 188J, 188K, 188L, 188M, **SOCIOL** 2, 44, 77, 165A, 170A, 170B, 175A, 175B, **SPANISH** 2A, 2AB, 2B, 2BZ, 2C, 2MD, S2AB, S2BC, 3A, 3B, 44, 50, **VIETMSE** 2A, 2B, 2C, 3A, 3B, 3C, **WOMNST** 60C

Academic Year: 2012-2013

Major in Computer Science and Engineering

The requirement of 24 design units is met with the required coursework.

<input type="checkbox"/> Math 2A, 2B	Still Needed:	2 Classes in MATH 2A, 2B
<input type="checkbox"/> Math 2D	Still Needed:	1 Class in MATH 2D
<input type="checkbox"/> Math 3A	Still Needed:	1 Class in MATH 3A
<input type="checkbox"/> Math 3D	Still Needed:	1 Class in MATH 3D
<input type="checkbox"/> I&CSci 6B	Still Needed:	1 Class in I&CSCI 6B
<input type="checkbox"/> I&CSci 6D	Still Needed:	1 Class in I&CSCI 6D
<input type="checkbox"/> Stats 67	Still Needed:	1 Class in STATS 67
<input type="checkbox"/> Physics 7C/7LC	Still Needed:	2 Classes in PHYSICS 7C, 7LC
<input type="checkbox"/> Physics 7D/7LD	Still Needed:	2 Classes in PHYSICS 7D, 7LD
<input type="checkbox"/> 2 addtl basic science courses	Still Needed:	2 Classes in ELECTIVE@
<input type="checkbox"/> CSE 31, 31L	Still Needed:	2 Classes in CSE 31, 31L
<input type="checkbox"/> CSE 41, 42, 43	Still Needed:	3 Classes in CSE 41, 42, 43
<input type="checkbox"/> CSE 45C	Still Needed:	1 Class in CSE 45C
<input type="checkbox"/> CSE 46	Still Needed:	1 Class in CSE 46
<input type="checkbox"/> CSE 50	Still Needed:	1 Class in CSE 50
<input type="checkbox"/> CSE 70A	Still Needed:	1 Class in CSE 70A
<input type="checkbox"/> CSE 90	Still Needed:	1 Class in CSE 90
<input type="checkbox"/> CSE 112	Still Needed:	1 Class in CSE 112
<input type="checkbox"/> CSE 132, 132L	Still Needed:	2 Classes in CSE 132, 132L
<input type="checkbox"/> CSE 135A, 135B	Still Needed:	2 Classes in CSE 135A, 135B

<input type="checkbox"/> CSE 141	Still Needed:	1 Class in CSE 141
<input type="checkbox"/> CSE 142	Still Needed:	1 Class in CSE 142
<input type="checkbox"/> CSE 145A, 145B	Still Needed:	2 Classes in CSE 145A , 145B
<input type="checkbox"/> CSE 161	Still Needed:	1 Class in CSE 161
<input type="checkbox"/> Design Experience: CSE 181A-B-C	Still Needed:	3 Classes in CSE 181A , 181B , 181CW
<input type="checkbox"/> In4mtx 43	Still Needed:	1 Class in IN4MTX 43
<input type="checkbox"/> EECS 111	Still Needed:	1 Class in EECS 111
<input type="checkbox"/> EECS 148 or CompSci 132	Still Needed:	1 Class in EECS 148 , COMPSCI 132
<input type="checkbox"/> Complete one track	Still Needed:	Choose from 1 of the following:
<input type="checkbox"/> Algorithms track		(2 Classes in COMPSCI 162 , 163 , 164 , 165 , 167 , 168 , 179) or
<input type="checkbox"/> Artificial Intelligence track		(2 Classes in COMPSCI 116 , 171 , 175 , 177 , 178 , 179) or
<input type="checkbox"/> Graphics/Vision track		(2 Classes in COMPSCI 112 , 116 , 117 , EECS 101) or
<input type="checkbox"/> Parallel and Distributed Computing		(2 Classes in EECS 117 , 123 , COMPSCI 131 , 133 , 134 , 144)

Electives		Credits Applied: 4	Classes Applied: 1
TEST E3102	COURSES GO HERE	B+	4 2008 Fall

Legend

- Complete
- Complete except for classes in-progress
- (T)** Transfer Class
- Not Complete
- Nearly complete - see advisor
- @** Any course number

Disclaimer

You are encouraged to use this degree audit report as a guide in constructing your academic plan to complete the requirements for your degree program. When you change your major, exceptions may not always apply to the new major. **This audit does not report all required GPAs.** Contact your academic counselor to confirm your academic plan and to receive assistance in interpreting this report.

Official certification of your degree is determined by your academic counseling office and is reported to the University Registrar for posting to your UCI academic record. Contact your academic counselor to confirm your progress towards degree completion and the University Registrar for copies of your transcript.

Career Advising

UCI Career Center

<http://www.career.uci.edu/>

In addition to career advising provided by the program faculty, career advising is also provided by the UCI Career Center. During the academic year the Career Center has “Take 10” drop-in hours every day from 10:00 AM to 4:00 PM. Students can bring in their resume or cover letter for review and ask quick questions related to job search or graduate school planning. For more in depth questions, individual appointments are also available. The Career Center has resume workshops 6 to 8 times per quarter with on-line resources, as well as workshops for interview techniques, job search strategies, and selecting and applying to graduate school. The Career Center offers a variety of workshops and webshops including Resume Writing, Interview Techniques, Social Media & Your Job Search, and Selecting & Applying to Graduate School to name a few. For more details: <http://www.career.uci.edu/>

The UCI Career Center hosts four Career Fairs throughout the year including a tech fair in October, as well as supports the Engineering Career Fair, EngiTech Fair, during Engineering Week in February.

Student Affairs Offices

The Student Affairs Offices (SAO) regularly invite a career counselor from the Career Center to host drop-in career counseling sessions.

The HSSoE SAO website (<http://undergraduate.eng.uci.edu/about/faq#career>) and the ICS SAO website (https://ftp.ics.uci.edu/about/search/search_sao.php) help to direct students to information about the E.I.T. and the F.E. exams, requirements for a Professional Engineering (P.E.) license, and graduate school.

CSE Faculty Advising

As mentioned previously, during the Winter Quarter, CSE faculty host an evening for students earning their degree in CSE where many topics are discussed, including future career possibilities and graduate school. Faculty advising is structured with a PowerPoint presentation. Guests from industry provide a broadened viewpoint of possibilities for the major. Individuals from industry come from the technical side, as well as HR/University Relations. Graduate students and alumni also provide a panel discussion. Time is dedicated for student feedback which allows for more student/faculty interaction. Topics include: undergraduate research (UROP, UC Leads, etc.), graduate school options, membership in professional associations and life-long learning. Discussion also includes advice on balancing priorities between school and work, and the value of participation in student groups. The CSE faculty have described career possibilities both in the catalogue and on the Office of Curriculum, Analytical Studies, and Accreditation (CASA) public website: <http://plaza.eng.uci.edu/degree-program/comparison/computing>

E. Work in Lieu of Courses

Summarize the requirements and process for awarding credit for work in lieu of courses. This could include such things as life experience, Advanced Placement, dual enrollment, test out, military experience, etc.

Work in lieu of courses is not an option.

F. Graduation Requirements

Summarize the graduation requirements for the program and the process for ensuring and documenting that each graduate completes all graduation requirements for the program. State the name of the degree awarded (Master of Science in Safety Sciences, Bachelor of Technology, Bachelor of Science in Computer Science, Bachelor of Science in Electrical Engineering, etc.)

Four groups of requirements must be met to earn a baccalaureate degree from UCI: 1) general UC requirements; 2) UCI requirements; 3) school or program requirements; 4) and degree-specific requirements. UC and UCI requirements for a Bachelor's Degree are described on pages 54-61 of the University of California, Irvine 2012-13 General Catalogue (General Catalogue) or at: <http://www.editor.uci.edu/catalogue/intro/intro.13.htm>. School, Program and major-specific requirements are described in full starting on page 193 of the 2012-13 General Catalogue or at: <http://www.editor.uci.edu/12-13/engr/engr.1.htm>

The UCI general education requirement categories for all undergraduate students are as follows:

- I. Writing (two lower-division plus one upper-division course)
- II. Science and Technology (three courses)
- III. Social and Behavioral Sciences (three courses)
- IV. Arts and Humanities (three courses)
- V. Quantitative, Symbolic, and Computational Reasoning, with subcategories Va and Vb (three courses that may also satisfy another GE category)
- VI. Language Other Than English (one course)
- VII. Multicultural Studies (one course that may also satisfy another GE category)
- VIII. International/Global Issues (one course that may also satisfy another GE category)

The Language Other Than English requirement is typically satisfied during high school. For engineering students, two general education categories (II. Science and Technology, V. Quantitative, Symbolic, and Computational Reasoning) are satisfied by the engineering and science courses required for the engineering major. Engineering students are required to take a total of 41 units (10 courses) in categories I, III, IV, VI and VIII. *Two courses in category*

VII can be double-counted for category III or IV. The specific requirements can be found in the general catalog at <http://www.editor.uci.edu/catalogue/intro/intro.13.htm>

<u>Categories</u>		<u>Units</u>
I.	Writing	8
III.	Social and Behavioral Sciences	12
IV.	Arts and Humanities	12
VI.	Language Other Than English	5
VIII.	International/Global Issues	4
TOTAL		41

Graduation with a B.S. in Computer Science and Engineering requires the completion of 180 quarter units, consisting of satisfactory completion of general education (as outlined above) and UC requirements, 48 units of mathematics and basic science, and 72 units of engineering topics (which includes 24 units of engineering design), and 63 units of computing topics (which includes 36 units of upper-division computing topics).

The Schools use an online degree checks, **DegreeWorks** (see Criterion 1-D) for all program, school, campus requirements, as well as electronic prerequisites checking for engineering courses, and a system of academic holds to ensure student compliance. Any variations to approved degree requirements must be approved by the faculty advisor for the program and is documented in writing in the student file.

Course equivalency with other institutions is evaluated both systematically and as-needed. UCI evaluates lower-division course equivalency with all California community colleges each year and maintains a database of equivalent courses and restrictions for students and advisors to access at <http://www.assist.org>. This evaluation is performed by academic advisors with faculty input under the direction of the Associate Dean. Students that come to UCI with coursework from other institutions have that coursework evaluated prior to matriculation under a similar review process. Students are required to provide course materials such as syllabi, course outlines, exams, papers and projects.

G. Transcripts of Recent Graduates

*The program will provide transcripts from some of the most recent graduates to the visiting team along with any needed explanation of how the transcripts are to be interpreted. **These transcripts will be requested separately by the team chair.** State how the program and any program options are designated on the transcript. (See 2013-2014 APPM, Section II.G.4.a.)*

The program will provide transcripts from some of the most recent graduates to the visiting team along with any needed explanation of how the transcripts are to be interpreted. The Computer Science and Engineering program is designated on the transcript as: COMPUTER SCI & ENGR. No program options are designated on the transcript.

CRITERION 2. PROGRAM EDUCATIONAL OBJECTIVES

A. Mission Statement

Provide the institutional mission statement.

The relevant mission statements for the University of California, UCI, The Henry Samueli School of Engineering, the Donald Bren School of Information and Computer Sciences, and the Computer Science and Engineering program are provided below:

The University of California

The University's fundamental missions are teaching, research and public service.

<http://www.universityofcalifornia.edu/aboutuc/mission.html>

Additionally:

The distinctive mission of the University is to serve society as a center of higher learning, providing long-term societal benefits through transmitting advanced knowledge, discovering new knowledge, and functioning as an active working repository of organized knowledge. That obligation, more specifically, includes undergraduate education, graduate and professional education, research, and other kinds of public service, which are shaped and bounded by the central and pervasive mission of discovering and advancing knowledge.

--- The University of California Academic Plan, 1974-1978, Office of the President, Berkeley, March 1974

<http://www.universityofcalifornia.edu/aboutuc/missionstatement.html>

Irvine Campus of the University of California

The University's fundamental missions are teaching, research and public service. The Irvine campus's fundamental missions are the same as the University of California's.

<http://www.universityofcalifornia.edu/aboutuc/mission.html>

The Henry Samueli School of Engineering

The academic mission of The Henry Samueli School of Engineering has been developed to be consistent with the missions and goals set for it by the State of California, The University of California and the UCI campus as articulated above and to be consistent with the Program Educational Objectives of the various individual engineering and related programs within The Henry Samueli School of Engineering.

Our mission is to educate students, at all levels, to be the best engineers and leaders in the nation and world by engaging them in a stimulating community dedicated to the discovery of knowledge, creation of new technologies, and service to society.

<http://www.eng.uci.edu/about/missions>

Donald Bren School of Information and Computer Sciences

The Donald Bren School of Information and Computer Sciences fundamental missions are teaching, research and public service.

The Donald Bren School of Information and Computer Sciences aims for excellence in research and education.

Our mission is to lead the innovation of new information and computing technology by fundamental research in the core areas of information and computer sciences and cultivating authentic, cutting-edge research collaborations across the broad range of computing and information application domains as well as studying their economic, commercial and social significance.

The diversity of our collaborations serves to reshape domains as far reaching as education, art and entertainment, business and law, the environment and biological systems, health care and medicine.

Consistent with our mission, we are committed to ensuring excellence through equity, producing a diverse, educated workforce for advancing technology, stimulating the economy and transferring new technology into the public realm to greatly advance quality of life.

http://www.ics.uci.edu/about/about_mission.php

Computer Science and Engineering Program

The educational mission of the Computer Science and Engineering Program at UC Irvine is to provide students with comprehensive, interdisciplinary training in computer science and engineering. This is accomplished by developing and offering a curriculum that integrates the fundamentals of computer science, both hardware and software, and the application of engineering concepts, techniques, and methods to computer systems engineering and design.

CSE's mission and goals are published on the Office of Curriculum, Analytical Studies, and Accreditation (CASA) public website: <http://plaza.eng.uci.edu/degree-program/cse/mission>

B. Program Educational Objectives

List the program educational objectives and state where these can be found by the general public.

The Program Educational Objectives for the Computer Science and Engineering (CSE) program are as stated below.

Graduates of the program will

- (1) establish a productive Computer Science and Engineering career in industry, government, or academia;
- (2) engage in professional practice of computer systems engineering and software systems engineering;
- (3) promote the development of innovative systems and solutions using hardware and software integration;
- (4) promote design, research and implementation of products and services in the field of Computer Science and Engineering through strong communication, leadership and entrepreneurial skills.

The CSE Program Educational Objectives are documented in the printed UCI General Catalogue and on-line at: <http://www.editor.uci.edu/catalogue/idp/idp.1.htm#cse>
CSE's mission and goals are also published on CASA's public website:
<http://plaza.eng.uci.edu/degree-program/cse/mission>

C. Consistency of the Program Educational Objectives with the Mission of the Institution

Describe how the program educational objectives are consistent with the mission of the institution.

The Computer Science and Engineering Program Educational Objectives (PEO) are consistent with the above mission statements. The statements include the obligation of providing programs for the transmission and discovery of knowledge, as well as performing research and public service.

PEO 1 is consistent with:

University of California - The University's fundamental missions are teaching, research and public service.

PEO 2 is consistent with:

The Henry Samueli School of Engineering - "Our mission is to educate students, at all levels, to be the best engineers"

PEO 3 is consistent with:

The Henry Samueli School of Engineering - "Our mission is to . . . [create] new technologies"

Donald Bren School of Information and Computer Sciences - "Our mission is to lead the innovation of new information and computing technology"

PEO 4 is consistent with:

The Henry Samueli School of Engineering - " Our mission is to educate students . . . to be the best . . . leaders"

Donald Bren School of Information and Computer Sciences - "Our mission is . . . cultivating authentic, cutting-edge research collaborations"

Donald Bren School of Information and Computer Sciences - "Consistent with our mission, . . . producing a diverse, educated workforce for . . . stimulating the economy"

Donald Bren School of Information and Computer Sciences - "Consistent with our mission, . . . transferring new technology into the public realm"

D. Program Constituencies

List the program constituencies. Describe how the program educational objectives meet the needs of these constituencies.

Program constituencies include students, alumni, faculty, and industry. The constituencies of the Computer Science and Engineering program include the recipients (students and alumni), providers (faculty), and the institutions that will employ our graduates (industry).

The Program Educational Objectives further the mission of the institution by educating the students and enabling them to begin careers. This produces quality graduates satisfying the needs of employers, thus enhancing the reputation of the institution. This in turn increases the value of a CSE diploma for alumni and gives faculty a feeling of satisfaction from interacting with and educating intelligent, motivated undergraduates.

E. Process for Review of the Program Educational Objectives

Describe the process that periodically reviews the program educational objectives including how the program's various constituencies are involved in this process. Describe how this process is systematically utilized to ensure that the program's educational objectives remain consistent with the institutional mission, the program constituents' needs, and these criteria.

The Lead Faculty direct the process of reviewing the Program Educational Objectives (PEOs). The Lead Faculty gather input from the various constituencies as to the appropriateness of the PEOs via a variety of sources (e.g. surveys, focus groups, committee meetings, individual communications) at least biannually. If there are indications that modifications of one or more of the PEOs should be given serious consideration, the Lead Faculty bring this matter to the attention of the CSE Steering Committee for their review.

Three initial CSE Program Educational Objectives (PEOs) were developed by the CSE Steering Committee, voted on, and approved on November 3, 2005. Following the process outlined above, a fourth CSE PEO was proposed, voted on, and approved on October 7, 2010. The fourth CSE PEO was approved to be listed as PEO 1.

In August 2010, a survey was sent that contained a questionnaire about the appropriateness of the Program Educational Objectives of the Computer Science and Engineering program. This survey was sent to 31 individuals in the Computer Science and Engineering field. Sixteen out of 31 questionnaires were completed and returned for a response rate of 52%.

The appropriateness of the PEOs was rated on a scale of 1-5; 5 being the most appropriate. The CSE Steering Committee set a goal of 5/5 (100%) expected level of attainment for the appropriateness of each CSE Program Educational Objective. The Lead Faculty believe that 4/5 (80%) is an acceptable level of appropriateness. The average scores for the PEOs (only PEO 2, 3, and 4, because PEO 1 was not used at the time of survey) were 4.63, 4.4 and 4.63 respectively. See Table 2-E-1 *Appropriateness of Program Educational Objectives (2010)*. Overall, the respondents indicated that the Program Educational Objectives for the Computer Science and Engineering (CSE) program are appropriate.

Table 2-E-1
Appropriateness of the Program Educational Objectives (2010)

			Not Appropriate			Appropriate		Total
			1	2	3	4	5	
Program Educational Objectives	Mean	Median	% (n _{res})	% (n _{res})	% (n _{res})	% (n _{res})	% (n _{res})	% (n _{tot})
2	4.63	5	---	---	13% (2)	13% (2)	75% (12)	100% (16)
3	4.44	4.5	---	---	6% (1)	44% (7)	50% (8)	100% (16)
4	4.63	5	---	---	6% (1)	25% (4)	69% (11)	100% (16)

In November 2012, another survey was sent containing a questionnaire about the appropriateness of the CSE PEOs. This survey was sent to 52 individuals in the CSE field (consisting of 14 members of the CSE Industrial Advisory Board and 38 CSE alumni on LinkedIn). There were sixteen respondents for a response rate of 31%. The average scores for the PEOs were 4.50, 4.38, 4.13, and 3.75. See Table 2-E-2 *Appropriateness of Program Educational Objective (2012)*. Overall, the respondents indicated that the Program Educational Objectives for the Computer Science and Engineering (CSE) program are appropriate.

Table 2-E-2
Appropriateness of the Program Educational Objectives (2012)

			No Response	Not Appropriate		3	Appropriate		Total
				1	2		4	5	
Program Educational Objectives	Mean	Median		% (n _{res})	% (n _{res})	% (n _{res})	% (n _{res})	% (n _{res})	% (n _{tot})
1	4.50	5	---	---	6% (1)	---	31% (5)	63% (10)	100% (16)
2	4.38	5	---	---	---	19% (3)	25% (4)	56% (9)	100% (16)
3	4.13	4	6% (1)	---	---	19% (3)	44% (7)	31% (5)	100% (16)
4	3.75	4	---	---	13% (2)	19% (3)	50% (8)	19% (3)	100% (16)

CRITERION 3. STUDENT OUTCOMES

A. Student Outcomes

List the student outcomes for the program and indicate where the student outcomes are documented. If the student outcomes are stated differently than those listed in Criterion 3, provide a mapping to the (a) through (k) Student Outcomes.

The Student Outcomes for undergraduate students in Computer Science and Engineering are as follows.

- (a) An ability to apply knowledge of computing, mathematics, science, and engineering appropriate to Computer Science and Engineering.
- (b) An ability to design and conduct experiments, as well as to analyze and interpret data.
- (c) An ability to design, implement, and evaluate a computer-based system, component, process, or program to meet desired needs within realistic constraints, such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability constraints.
- (d) An ability to function effectively on multidisciplinary teams to accomplish a common goal.
- (e) An ability to identify, formulate, and solve engineering problems and to analyze a problem, and identify and define the computing requirements appropriate to its solution.
- (f) An understanding of professional, ethical, legal, security, and social issues and responsibilities.
- (g) An ability to communicate effectively with a range of audiences.
- (h) An ability to understand the impact of engineering solutions in a global, economic, environmental, and societal context; and to analyze the impact of computing on individuals, organizations, and society.
- (i) Recognition of the need for and ability to engage in continuing professional development and life-long learning.
- (j) Knowledge of contemporary Computer Science and Engineering issues.
- (k) An ability to use current techniques, skills, and tools necessary for computing practice and engineering practice.
- (l) An ability to apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the tradeoffs involved in design choices.
- (m) An ability to apply design and development principles in the construction of software systems of varying complexity.

The mapping of these CSE student outcomes to the (a) through (k) ABET-defined Student Outcomes is shown in Table 3-1 *Correspondence Between Student Outcomes and ABET Student Outcomes for Academic Year 2012-13*. The EAC, CAC, and CSE Student Outcomes are parsed into Outcome Indicators in such a way so that the set of CSE Outcome Indicators is equal to the union of the EAC and CAC Outcome Indicators. Table 3-2 *Correspondence Between ABET Student Outcomes and Indicators 2012-13* provides the mapping between EAC and CAC Student Outcomes and the Outcome Indicators. The CSE Outcome Indicators are as follows.

- (a1) Students can apply knowledge of mathematics to Computer Science and Engineering.
- (a2) Students can apply knowledge of science and engineering to CS and Engineering.
- (a3) Students can apply knowledge of computing to Computer Science and Engineering.
- (b1) Students can design and conduct experiments.
- (b2) Students can analyze and interpret data.
- (c1) Students can design and implement a computer-based system to meet desired needs within realistic constraints.
- (c2) Students can evaluate a computer-based system to meet desired needs within realistic constraints.
- (d1) Students can function effectively on multidisciplinary teams to agree on common subgoals.
- (d2) Students can function effectively on multidisciplinary teams to clearly define interfaces between multiple system components.
- (e1) Students can identify, formulate, and solve engineering problems.
- (e2) Students can analyze a problem, and identify the computing requirements appropriate to its solution.
- (f1) Students can demonstrate an understanding of professional and ethical issues and responsibilities.
- (f2) Students can demonstrate an understanding of legal and social issues and responsibilities.
- (f3) Students can demonstrate an understanding of security issues and responsibilities.
- (g1) Students can communicate effectively with a range of audiences.
- (h1) Students can demonstrate an understanding of the impact of engineering solutions in a global, economic, environmental, and societal context.
- (h2) Students can analyze the local and global impact of computing on individuals, organizations, and society.
- (i1) Students can demonstrate an understanding of the need to engage in continuing professional development and life-long learning.
- (j1) Students can demonstrate knowledge of contemporary CS and Engineering issues.
- (k1) Students can use current techniques, skills, and tools necessary for engineering practice.
- (k2) Students can use current techniques, skills, and tools necessary for computing practice.
- (L1) Students can apply mathematical foundations in the modeling and design of computer-based systems in a way that demonstrates comprehension of the design choice tradeoffs.
- (L2) Students can apply algorithmic principles and computer science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the design choice tradeoffs.
- (m1) Students can apply design and development principles in the construction of software systems of varying complexity.

Table 3-1
Correspondence Between Student Outcomes and ABET Student Outcomes
for Academic Year 2012-13

EAC Student Outcome	CSE student outcome
a	a
b	b
c	c
d	d
e	e
f	f
g	g
h	h
i	i
j	j
k	k

CAC Student Outcome	CSE student outcome
a	a
b	e
c	c
d	d
e	f
f	g
g	h
h	i
i	k
j	l
k	m

CSE student outcome	EAC Student Outcome	CAC Student Outcome
a	a	a
b	b	-
c	c	c
d	d	d
e	e	b
f	f	e
g	g	f
h	h	g
i	i	h
j	j	-
k	k	i
l	-	j
m	-	k

Table 3-2
Correspondence Between ABET Student Outcomes and Indicators 2012-13

EAC Student Outcome	CSE student outcome indicator
a	a1, a2
b	b1, b2
c	c1
d	d1, d2
e	e1
f	f1
g	g1
h	h1
i	i1
j	j1
k	k1

CAC Student Outcome	CSE student outcome indicator
a	a1, a3
b	e2
c	c1, c2
d	d1, d2
e	f1, f2, f3
f	g1
g	h2
h	i1
i	k2
j	L1, L2
k	m1

CSE student outcome indicator	EAC Student Outcome	CAC Student Outcome
a1	a	a
a2	a	-
a3	-	a
b1	b	-
b2	b	-
c1	c	c
c2	-	c
d1	d	d
d2	d	d
e1	e	-
e2	-	b
f1	f	e
f2	-	e
f3	-	e
g1	g	f
h1	h	-
h2	-	g
i1	i	h
j1	j	-
k1	k	-
k2	-	i
L1	-	j
L2	-	j
m1	-	k

B. Relationship of Student Outcomes to Program Educational Objectives

Describe how the student outcomes prepare graduates to attain the program educational objectives.

Below, Table 3-3 *Computer Science and Engineering Student Outcomes support the attainment of Computer Science and Engineering Program Educational Objectives* describes how the CSE Student Outcomes prepare graduates to attain the Program Educational Objectives. For instance, CSE SO (a) provides the knowledge for applying mathematics, computer science, engineering techniques to solving problems in the field, which supports attainment of PEO 2 and 3. The same relationship holds for the other CSE SOs and PEOs as spelled out in Table 3-3.

Table 3-3
Computer Science and Engineering Student Outcomes support the attainment of Computer Science and Engineering Program Educational Objectives

CSE Student Outcomes	Relevant PEOs	Comment
(a) An ability to apply knowledge of computing, mathematics, science, and engineering appropriate to Computer Science and Engineering.	PEO 2 PEO 3	Mathematical knowledge is the foundation of engineering analysis and design.
(b) An ability to design and conduct experiments, as well as to analyze and interpret data.	PEO 1 PEO 2	Experimental and analytical abilities are essential for a productive career and for evaluating the efficacy of any design.
(c) An ability to design, implement, and evaluate a computer-based system, component, process, or program to meet desired needs within realistic constraints, such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability constraints.	PEO 1 PEO 2 PEO 3	Understanding realistic constraints is critical factor in professional careers and an integral part of any useful design process.
(d) An ability to function effectively on multidisciplinary teams to accomplish a common goal.	PEO 1 PEO 4	The communication skill in a multidisciplinary team is critical for a productive career and for any product design and service delivery.
(e) An ability to identify, formulate, and solve engineering problems and to analyze a problem, and identify and define the computing requirements appropriate to its solution.	PEO 3	Ability to identify and formulate and analyze problems is essential for innovative systems and solutions.
(f) An understanding of professional, ethical, legal, security, and social issues and responsibilities.	PEO 1 PEO 4	Contextual understanding is essential for the long-term success of any career and product development.
(g) An ability to communicate effectively with a range of audiences.	PEO 1 PEO 2	Communication skills are especially important in

Table 3-3***Computer Science and Engineering Student Outcomes support the attainment of Computer Science and Engineering Program Educational Objectives***

CSE Student Outcomes	Relevant PEOs	Comment
	PEO 4	advanced studies and professional venues.
(h) An ability to understand the impact of engineering solutions in a global, economic, environmental, and societal context; and to analyze the impact of computing on individuals, organizations, and society.	PEO 1 PEO 2	A broad understanding of impacts from engineering solutions is critical to success of productive careers.
(i) Recognition of the need for and ability to engage in continuing professional development and life-long learning.	PEO 1 PEO 2 PEO 3	Lifelong learning and dissemination of knowledge is in fact the main purpose of professional gatherings and advanced study.
(j) Knowledge of contemporary Computer Science and Engineering issues.	PEO 1 PEO 2	It is essential for career development to stay up-to-date in one's field.
(k) An ability to use current techniques, skills, and tools necessary for computer practice and engineering practice.	PEO 2 PEO 3	Modern tools (e.g., simulation) are essential for analyzing complex engineering problems.
(l) An ability to apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the tradeoffs involved in design choices.	PEO 2 PEO 3	Tradeoffs are essential for most engineering designs; such tradeoffs have to be mathematically justified if possible.
(m) An ability to apply design and development principles in the construction of software systems of varying complexity.	PEO 2 PEO 3	Software engineering techniques should be applied to construct software of any scale.

CRITERION 4. CONTINUOUS IMPROVEMENT

This section of your self-study report should document your processes for regularly assessing and evaluating the extent to which the program educational objectives and student outcomes are being attained. This section should also document the extent to which the program educational objectives and student outcomes are being attained. It should also describe how the results of these processes are being utilized to effect continuous improvement of the program.

Assessment is defined as one or more processes that identify, collect, and prepare the data necessary for evaluation. Evaluation is defined as one or more processes for interpreting the data acquired through the assessment processes in order to determine how well the program educational objectives and student outcomes are being attained.

Although the program can report its processes as it chooses, the following is presented as a guide to help you organize your self-study report.

A. Student Outcomes

It is recommended that this section include (a table may be used to present this information):

- 1. A listing and description of the assessment processes used to gather the data upon which the evaluation of each student outcome is based. Examples of data collection processes may include, but are not limited to, specific exam questions, student portfolios, internally developed assessment exams, senior project presentations, nationally-normed exams, oral exams, focus groups, industrial advisory committee meetings, or other processes that are relevant and appropriate to the program.*
- 2. The frequency with which these assessment processes are carried out*
- 3. The expected level of attainment for each of the student outcomes*
- 4. Summaries of the results of the evaluation process and an analysis illustrating the extent to which each of the student outcomes is being attained*
- 5. How the results are documented and maintained*

The evaluation of Student Outcomes is based on quarterly faculty assessments of student performance on student outcome indicators in required courses. Primary responsibility for each course in the CSE curriculum is assigned to one of the two sponsoring schools, Engineering and ICS. As detailed below, each year the Program Lead Faculty in each of the two schools interviews the coordinating faculty member for courses in the CSE curriculum for which the school has primary responsibility. The interview can result in establishing or revising the set of Course Learning Outcomes (CLOs) associated with that course and, for each CLO, establishing or revising the set of student outcomes to which that CLO contributes.

An interview is scheduled when either:

- (1) the course initially becomes part of the CSE curriculum,
- (2) the course is in the CSE curriculum and is revised,
- (3) the course is used for assessment of student outcomes via FCARs, or
- (4) the set of student outcomes (as defined by ABET) is modified.

The Program Lead Faculty establish the set of indicators used to help assess student outcome achievement, and determine which courses are to be used to assess the various student outcomes (the Assessment Plan). Guidelines used in this determination include the desire that each student outcome indicator should be assessed in at least two courses, and that courses involved in assessing student outcomes are preferably not introductory.

Student outcome indicators are typically assessed within a course by the faculty member responsible for instruction in that class and recorded on an FCAR (Faculty Course Assessment Report) on the basis of student performance on a quiz, examination problem, or senior project exercise or presentation. Project performance is evaluated using documented rubrics. The instructor specifies the performance standard for each assessed problem (but is strongly urged to use a standard of at least 70%), and the performance standard for rubrics is usually set at level three when there are four levels on the chart. Sample FCARs from Fall 2012 are provided in Appendix F.

Usually, instructors submit an FCAR for their course at the conclusion of the course. However, in some cases instructors may retain the entire set of class submissions for the final exam or project and assess performance on a particular indicator some time later, thereby avoiding the time pressure that often accompanies final grade submission deadlines.

The results of the assessments as documented in the FCAR are stored together with sample student work and other material provide by the instructor in Engineering Hall, Room 2206. These materials are kept on file for three years.

Blank FCAR forms are individualized by course and are available to instructors on the Web. They can be filled out on-line and submitted via email. Alternatively, the blank forms can be printed out, filled in by hand, and submitted on paper. Paper FCARs are then scanned so that all completed FCARs can be easily reviewed by the Program Lead Faculty.

For 2012-13, an FCAR contains the following information for each assessed student outcome indicator:

- (1) which assignment was used to assess the indicator
- (2) the maximum score possible (Max) on that assignment
- (3) the performance standard for that assignment (expressed in points and as a percentage of Max)
- (4) the number of CSE students who were assessed on that assignment
- (5) the average score achieved by those CSE students on that assignment (expressed in points and as a percentage of Max)

- (6) the number and also percentage of CSE students who achieved the performance standard on that assignment

Note that some of the classes in the CSE curriculum are also taken by students who are not CSE majors. The FCAR provides data pertaining only to those students in the class who are CSE students.

Table 4-A-1 *CSE Student Outcome Indicator achievement* provides a synopsis of attainment of Student Outcome Indicators. For each course and for each Indicator assessed on that course's FCAR, an entry in the table shows the number of CSE students who were assessed and the percentage of CSE students who achieved the performance standard. In those cases in which there were multiple offerings of a course during the academic year, the table entries contain the sum of the numbers of CSE students in the offerings and a weighted average of the percentages.

For example, consider the hypothetical situation in which there were two offerings of BIO 234 that was assessing outcome n. One offering assessed 20 students, 100% of whom achieved the performance standard, and the second offering assessed 40 students, 70% of whom achieved the performance standard. The table entry for BIO 234 outcome n would show that the number of students assessed is the sum $20+40 = 60$, and the percentage achieving the standard is the weighted sum $100\%*(20/60) + 70%*(40/60) = 80\%$.

Note that each student outcome (as defined by the EAC and CAC of ABET) corresponds to a set of one or two student outcome indicators, and this correspondence is shown in Table 3-1 *Correspondence Between Student Outcomes and ABET Student Outcomes for Academic Year 2012-13*.

Table 4-A-1 *CSE Student Outcome Indicator achievement* also shows the average percentage of CSE students who achieved the performance standard for each Indicator. This average is obtained by taking the weighted average of the percentages listed for that Indicator among the courses assessing that Indicator, where the weights are the numbers of CSE students who were assessed for that indicator in each course.

Finally, as shown in Table 4-A-2 *ABET Student Outcome achievement*, the percentage of students achieving a Student Outcome as defined by an ABET commission (EAC or CAC) is obtained by taking the minimum of the percentages of students achieving the indicators associated with that Student Outcome for that commission.

The CSE Steering Committee set a goal of 70% expected level of attainment for achievement of all Student Outcomes. To assist in focusing on areas of concern, the entries in Tables 4-A-1 and 4-A-2 that are below the 70% desired level of attainment are highlighted.

Evaluation of SO Direct Assessment Data

Student Outcome Indicators

For 2009-10, it is seen from Table 4-A-1 (2009-10) that most of the problematic Student Outcome Indicators (highlighted) were in the 60-69% decile. The only Indicators with attainment more than 10% below the desired 70% level were 2009-m2 in CSE 121 and b2 in CSE 181B. Note that one of the references to Student Outcome Indicators included a prefix denoting the year because the definition of some of the Student Outcome Indicators changed subsequent to that year.

For 2010-11, it is seen from Table 4-A-1 (2010-11) that some of the problematic Student Outcome Indicators (highlighted) were in the 60-69% decile. However, there were several Indicators with attainment more than 10% below the desired 70% level. These problematic Indicators were: h1 in CSE 90, c2 in CSE 135B, i1 and j1 in CSE 181A, and b2 in CSE 181B.

For 2011-12, it is seen from Table 4-A-1 (2011-12) that there was only one problematic Student Outcome Indicator, e2, and the problem with that Indicator is traced to just one course, CSE 161.

For 2012-13, it is seen from Table 4-A-1 (2012-13) that there were problematic Student Outcome Indicators a1 and b2 (and, to a lesser extent, c2) in CSE 135B, and b1 and b2 in CSE 181B.

Student Outcomes

For 2009-10, it is seen from Table 4-A-2 (2009-10) that most of the Student Outcomes were achieved by over 70% of the students who were assessed. The exceptions were Student Outcomes EAC-i, EAC-j, CAC-h, and CAC-k, all of which were in the 60-69% decile of attainment.

For 2010-11, it is seen from Table 4-A-2 (2010-11) that almost all of the Student Outcomes were achieved by over 70% of the students who were assessed. The only exception was Student Outcome EAC-j, which was in the 60-69% decile of attainment.

For 2011-12, it is seen from Table 4-A-2 (2011-12) that almost all of the Student Outcomes were achieved by over 70% of the students who were assessed. The only exception was Student Outcome CAC-b, which was in the 60-69% decile of attainment.

For 2012-13, it is seen from Table 4-A-2 (2012-13) there were problematic Student Outcomes in EAC-a, EAC-b, and CAC-a. All other Student Outcomes were achieved by over 70% of the assessed students.

Evaluation of SO Indirect Assessment Data

An indirect measure of student achievement on Student Outcome indicators is obtained from data acquired in an annual survey of graduating seniors that is conducted during the

last weeks of the Spring quarter. (Data from this survey is also used for a variety of other purposes.) A copy of the survey is shown in Appendix E, and a synopsis of the survey results for academic years 2009-10, 2010-11, 2011-12, and 2012-13 is shown in Table 4-A-3.

The survey response answer options have values in the range 1 to 5, where 1 corresponds to "Not at all", 2 is "Somewhat", 3 is "Adequate", 4 is "Moderate", and 5 is "Very Well". Even though many might accept "Adequate" as being sufficient, we set our performance standards to be at level 4, "Moderate". Note that a standard of 4 on a scale of 5 is 80%. Whereas the goal for direct assessment is 70% achieving a standard of 70%, for indirect assessment we set a goal of 60% achieving a standard of 80%.

There were several cases in which a number of different posed questions referenced different aspects of the same Indicator. When all these aspects are needed for that Indicator to be satisfied, the percentage attainment for that Indicator is calculated by taking the minimum of the attainments shown for the different questions. (With one exception, Indicator a1, which is split into two parts as explained below.) When any one these aspects suffices for that Indicator to be satisfied, the percentage attainment for that Indicator is calculated by taking the maximum of the attainments shown for the different questions.

Outcome indicators whose attainment levels (as perceived by the students) were below the 60% desired minimum rate are bolded and highlighted in Table 4-A-3.

For the years prior to 2012, the percentage of students who believe that they attained a Moderate level of performance for the various Student Outcome indicators had been relatively stable. It is seen that only one Indicator, a1, ability to solve problems by applying knowledge of mathematics, was problematic and it has an interesting analysis. There were six different types of mathematics of which students were asked as to their abilities. Students were relatively confident of their abilities to apply calculus, discrete mathematics, linear algebra, and symbolic logic. Students were ambivalent about their abilities to apply probability and statistics.

The results of the 2012-13 survey of graduating seniors was markedly different. The percentage of students confident in their abilities was significantly lower across the board, resulting in many problematic Indicators. It is noted that this is coincident with the unusual increase in problematic direct assessments that occurred in some senior-level courses this past year.

The association of survey questions to Indicators in Table 4-A-3 is based on the 2012-13 definitions of Indicators. Table 4-A-4 shows the percentage of students who believe that they are relatively confident of their abilities with respect to each of the EAC and CAC Student Outcomes. The percentage shown for each Student Outcome in this table was obtained by taking the minimum of the percentages shown for each of the Indicators associated with that Student Outcome. Table entries that contain percentages below 60% are bolded and highlighted.

Summary Evaluation of Student Outcomes

Almost all Student Outcomes were achieved by over 70% of the students who were assessed. For each of EAC and CAC, every year there were at most two problematic Student Outcomes with difficulties traced back to one or two courses. This past year's problematic Student Outcomes Indicators were a1 and b2 (and, to a lesser extent, c2) in CSE 135B, and b1 and b2 in CSE 181B.

Prior to this last year, the students' self-assessment indicates that more than 60% of the students are confident of their abilities on all Student Outcomes except for Student Outcome (a) at 47%. As mentioned above, this is due to student ambivalence of their ability to apply probability and statistics to CSE problems. Students appear to have confidence of their ability to apply most other aspects of mathematics to CSE problems.

However, this last year there were numerous problematic self-assessments across the board. The percentages of students who felt that they had at least moderate ability decreased in every one of the twenty-four categories questioned, and the decrease was by ten or more percentage points in all but three of the categories.

Table 4-A-1 (2008-09)
CSE Student Outcome Achievement
Percentage of students achieving Performance Standards

Courses	CSE student outcomes 2008-09												
	a	b	c	d	e	f	g	h	i	j	k	L	m
CSE 90 Systems Eng'g and Technical Communications						100		98		100			
CSE 121 Software Tools and Methods				90*	92*						87*		94*
CSE 135B Digital Signal Processing Design and Laboratory	88		75								88	75	
CSE 141 Concepts in Programming Languages I												68	73
CSE 142 Compilers and Interpreters												71	82
CSE 151 Intro. To VLSI	86				74				72	72	76	85	
CSE 161 Design and Analysis of Algorithms	65												
CSE 181A Senior Design Project		94	79	75	92	68	92	98	98	98	81	73	
CSE 181B Senior Design Project		100	91	82	100		100				89	83	
CSE 181CW Senior Design Project (Writing)				96		80	91						
AVERAGE PERCENT MEETING STANDARDS	80	97	82	86	89	83	94	98	85	90	84	76	83

* indicates average of multiple sections

Table 4-A-1 (2009-10)
CSE Student Outcome Indicators achievement
Percentage of students achieving Performance Standards

Courses	CSE Student Outcome Indicators 2009-10																													
	a			b		c		d		e			f	g		h		i	j	k		L		m						
	1	2	3	1	2	1	2	1	2	1	2	3	1	1	2	1	2	1	1	1	2	1	2	1	2					
CSE 90 Systems Eng'g & Technical Comm'ns												100			100	100														
CSE 121 Software Tools and Methods								92*	87*	93*	93*	82*								95*			89*	45*						
CSE 135B Digital Signal Process'g Design Lab	82	64	85	82	85	63	67												78	64	64	82								
CSE 141 Concepts in Programming Lang's I																			85	85	77	77								
CSE 151 Intro. To VLSI	78	83	84						73	73	77								73	73										
CSE 161 Design and Analysis of Algorithms	60*	76*																												
CSE 181A Senior Design Project				83	93	97	93	100	83	97			63		97		63	63	63	97	100	93	67							
CSE 181B Senior Design Project				70	53	73		100	100		87	83		100						87										
CSE 181CW Senior Design Project (Writing)								96	96				89	100	96															
AVERAGE PERCENT ATTAINMENT	73	74	84	78	77	78	80	97	91	88	84	81	84	100	96	100	81	63	63	86	79	81	78	83	61					

* indicates average of multiple sections

Table 4-A-1 (2010-11)
CSE Student Outcome Indicator achievement
Percentage of students achieving Performance Standards

Courses	CSE Student Outcome Indicators 2010-11																									
	a			b		c		d		e		f		g		h		i		j		k		L		m
	1	2	3	1	2	1	2	1	2	1	2	1	2	1	1	1	2	1	1	1	2	1	2	1	2	1
CSE 90 Systems Engineering and Techn'l Communications	ct											89	91	100	48	91	91	86								
												35	35	35	35	35	35	35								
CSE 121 Software Tools and Methods	ct			85							85								77	86					90	
				39*							38*								36*	40*					39*	
CSE 135B Digital Signal Proc'ing Design	ct	64	94	76	94	100	76	58																		
		33	33	33	33	33	33	33																		
CSE 142 Compilers and Interpreters	ct																						92	73	92	
																							36*	37*	36*	
CSE 151 Intro to VLSI	ct	82	88	85	94	82					85						88			94						
		34	34	34	34	34					34						34			34						
CSE 161 Design & Analysis of Algorithms	ct	76		91							65															
		34		34							34															
CSE 181A Senior Design Project	ct					89	89			89		92	92	100	100	100	46	46				100	78			
						37	37			37		37	37	37	37	37	37	37				37	37			
CSE 181B Senior Design Project	ct			76	51	97	76	84	95		100			100						86	86	89	89			
				37	37	37	37	37	37		37			37						37	37	37	37			
CSE 181CW Senior Design Project (Writing)	ct							100	89			97	97	100												
								37	37			37	37	37												
AVG PERCENT ATTAINMENT		74	91	84	88	77	88	75	92	92	86	83	93	93	100	75	96	74	65	86	86	94	80	91		

* indicates multiple course sections, entry obtained by using a weighted average

Table 4-A-1 (2011-12)

*CSE Student Outcome Indicator achievement
 Percentage of students achieving Performance Standards*

Courses	CSE Student Outcome Indicators 2011-12																									
	a			b		c		d		e		f			g	h		i		j	k		L		m	
	1	2	3	1	2	1	2	1	2	1	2	1	2	3	1	1	2	1	1	1	2	1	2	1		
CSE 90 Systems Engineering and Techn'l Communications																										
	ct													76	96	100	100	100	100	96	77					
CSE 121 Software Tools and Methods			97																							
	ct		34											94									80	100	91	
CSE 135B Digital Signal Proc'ing Design		95	95	82	72	90	97	72																		
	ct	39	39	39	39	39	39	39																		
CSE 142 Compilers and Interpreters																							71	81	71	
	ct																						21	26	21	
CSE 151 Intro to VLSI		76	84	90	88	93																				
	ct	43	43	43	43	43								76										91		
CSE 161 Design & Analysis of Algorithms		88		80																						
	ct	25		25										52												
CSE 181A Senior Design Project							100	100						95	87		80	90	90	90	90			87	100	
	ct						23	23						40	20		40	40	40	40	40			23	23	
CSE 181B Senior Design Project				82	82	100	100	100	100								100						100	100	82	82
	ct			23	23	23	23	23	23								23						23	23	23	23
CSE 181CW Senior Design Project (Writing)							100	100						100	97	97	100									
	ct						39	39						39	39	39	39									
AVG PERCENT ATTAINMENT		86	89	88	81	89	99	87	100	100	88	65	92	94	98	94	94	94	94	92	85	89	100	80	87	83

Table 4-A-1 (2012-13)
CSE Student Outcome Indicator achievement
Percentage of students achieving Performance Standards

Courses		CSE Student Outcome Indicators 2012-13																							
		a			b		c		d		e		f			g	h		i	j	k		L		m
		1	2	3	1	2	1	2	1	2	1	2	1	2	3	1	1	2	1	1	1	2	1	2	1
Informatics 43 Introduction to Software Engineering	ct										94										88	82			94
											17										17	17			17
CSE 90 Systems Engineering and Techn'l Communications	ct													100	96	100	96	100		100	96				
														25	25	25	25	25		25	25				
CSE 112 Intro to VLSI	ct	75	92	81	92	92					80										73				
		26	26	26	26	26					25										26				
CSE 135B Digital Signal Proc'ing Design	ct	41	88	94	94	39	94	65																	
		32	34	34	33	33	34	34																	
CSE 142 Compilers and Interpreters	ct																					87	97	90	
																						30	30	30	
CSE 145B Embedded Computer Systems Lab	ct																						93		
																							28		
CSE 161 Design & Analysis of Algorithms	ct	88		88							88														
		17		17							17														
CSE 181A Senior Design Project	ct												89	97	89	100	100	97	94	92					
													36	36	36	36	36	36	36	36					
CSE 181B Senior Design Project	ct				39	50	94	83	100	92	81	86				94	83				89	86			
					36	36	36	36	36	36	36	36				36	36				36	36			
CSE 181CW Senior Design Project (Writing)	ct							75	97				72	100	100	100									
								36	36				36	36	36	36									
AVG PERCENT ATTAINMENT		63	89	88	73	58	94	74	88	95	84	87	86	98	96	98	94	97	96	94	84	85	87	95	91

Table 4-A-2 (2008-09)

ABET Student Outcome achievement

Percentage of students meeting performance Standards

CSE Student Outcomes	AVG percent attainment	EAC Student Outcomes											CAC Student Outcomes											
		a	b	c	d	e	f	g	h	i	j	k	a	b	c	d	e	f	g	h	i	j	k	
a	80	80																						
b	97		97																					
c	82			82																				
d	86				86																			
e	89					89																		
f	83						83																	
g	94							94																
h	98								98															
i	85									85														
j	90										90													
k	84											84												
L	76																				86			
m	83																					76		
Percent meeting Standards		80	97	82	86	89	83	94	98	85	90	84	80	89	82	86	83	94	98	85	86	76	83	

Table 4-A-2 (2009-10)
ABET Student Outcome achievement
Percentage of students meeting Performance Standards

CSE SO Indicators	AVG percent attainment	EAC Student Outcomes											CAC Student Outcomes										
		a	b	c	d	e	f	g	h	i	j	k	a	b	c	d	e	f	g	h	i	j	k
a1	73												73										
a2	74	74											74										
a3	84	84																					
b1	78		78																				
b2	77		77																				
c1	78			78											78								
c2	80				80										80								
d1	97				97											97							
d2	91				91											91							
e1	88					88																	
e2	84						84							84									
e3	81							81						81									
f1	84						84									84							
g1	100							100									100						
g2	96							96									96						
h1	100								100														
h2	81								81														
i1	63									63													
j1	63										63												
k1	86											86											
k2	79																						79
L1	81																						81
L2	78																						78
m1	83																						83
m2	61																						61
Percent meeting Standards		74	77	78	91	88	84	96	81	63	63	79	73	81	78	91	84	96	81	63	86	78	61

Table 4-A-2 (2010-11)

*ABET Student Outcome achievement
Percentage of students meeting Performance Standards*

CSE SO Indicators	AVG percent attainment	EAC Student Outcomes											CAC Student Outcomes											
		a	b	c	d	e	f	g	h	i	j	k	a	b	c	d	e	f	g	h	i	j	k	
a1	74	74											74											
a2	91	91																						
a3	84												84											
b1	88		88																					
b2	77		77																					
c1	88			88											88									
c2	75				75										75									
d1	92					92										92								
d2	92					92										92								
e1	86						86										86							
e2	83							83										83						
f1	93								93										93					
f2	93									93										93				
g1	100										100													
h1	75											75												
h2	96																				96			
i1	74																					74		
j1	65																						65	
k1	86																						86	
k2	86																							86
L1	94																							94
L2	80																							80
m1	91																							91
Percent meeting Standards		74	77	88	92	86	93	100	75	74	65	86	74	83	75	92	93	100	96	74	86	80	91	

Table 4-A-2 (2011-12)
ABET Student Outcome achievement
Percentage of students meeting Performance Standards

CSE SO Indicators	AVG percent attainment	EAC Student Outcomes											CAC Student Outcomes										
		a	b	c	d	e	f	g	h	i	j	k	a	b	c	d	e	f	g	h	i	j	k
a1	86	86											86										
a2	89	89																					
a3	88												88										
b1	81		81																				
b2	89		89																				
c1	99			99											99								
c2	87														87								
d1	100				100											100							
d2	100				100											100							
e1	88					88																	
e2	65						92							65									
f1	92							92									92						
f2	94																94						
f3	98																98						
g1	94								94									94					
h1	94									94													
h2	94																						
i1	92										92												
j1	85											85											
k1	89												89										
k2	100																						
L1	80																						
L2	87																						
m1	83																						
Percent meeting Standards		86	81	99	100	88	92	94	94	92	85	86	86	65	87	100	92	94	94	92	100	80	83

Table 4-A-2 (2012-13)
ABET Student Outcome achievement
Percentage of students meeting Performance Standards

CSE SO Indicators	AVG percent attainment	EAC Student Outcomes											CAC Student Outcomes											
		a	b	c	d	e	f	g	h	i	j	k	a	b	c	d	e	f	g	h	i	j	k	
a1	63	63																						
a2	89	89																						
a3	88																							
b1	73		73																					
b2	58		58																					
c1	94			94																				
c2	74																							
d1	88				88																			
d2	95					95																		
e1	84						84																	
e2	87																							
f1	86							86																
f2	98																							
f3	96																							
g1	98								98															
h1	94									94														
h2	97																							
i1	96										96													
j1	94											94												
k1	84												84											
k2	85																							
L1	87																							
L2	95																							
m1	91																							
Percent meeting Standards		63	58	94	88	84	86	98	94	96	94	84	63	87	74	88	86	98	97	96	85	87	91	

Table 4-A-3

*CSE Student Outcome Achievement from Senior Surveys --
Percentage of students achieving Performance Standards*

CSE SENIOR SURVEY (2012 quest #s)		2009-10 percent attainment	2010-11 percent attainment	2011-12 percent attainment	2012-13 percent attainment
survey question	Indicator				
min 2.1-2.3,2.6	a1	65	84	64	44
min 2.4-2.5	a1	45	51	47	43
2.7	a2	65	72	65	52
min 2.8-2.13	a3	68	87	76	52
3	b1	78	85	81	72
4	b2	83	88	91	79
max 5.1-5.8	c1	69	66	88	57
max 6.1-6.8	c2	71	85	88	69
7	d1	89	97	91	76
8	e1	89	97	85	83
9	e2	79	90	91	79
min 10.1-10.2	f1	83	90	88	69
min 10.3, 10.5	f2	75	63	81	56
10.4	f3	86	63	78	68
min 11.1-11.2	g1	79	79	67	55
min 12.1-12.4	h1	65	66	66	51
13	h2	74	73	72	62
14	i1	97	97	91	73
15	j1	68	81	78	62
16	k1	90	87	74	45
17	k2	86	97	87	72
18	L1	76	84	65	55
min 19-20	L2	86	78	85	69
21	m1	71	84	78	68
maximum possible score = 5, performance standard = 4					

Table 4-A-4 (2010-11)

*ABET Student Outcome achievement from Senior Survey
Percentage of students meeting performance Standards*

CSE SO Indicators	AVG percent attainment	EAC Student Outcomes											CAC Student Outcomes										
		a	b	c	d	e	f	g	h	i	j	k	a	b	c	d	e	f	g	h	i	j	k
a1	51	51											51										
a2	72	72																					
a3	87												87										
b1	85		85																				
b2	88		88																				
c1	66			66											66								
c2	85				85										85								
d1,d2	97					97										97							
e1	97						97										97						
e2	90							90						90									
f1	90								90								90						
f2	63									63							63						
g1	79										79							79					
h1	66											66											
h2	73																						
i1	97																						
j1	81																						
k1	87																						
k2	97																						
L1	84																						
L2	78																						
m1	84																						
Percent meeting Standards		51	85	66	97	97	90	79	66	97	81	87	51	90	66	97	63	79	73	97	97	78	84

Table 4-A-4 (2011-12)

*ABET Student Outcomes achievement from Senior Survey
Percentage of students meeting Performance Standards*

CSE SO Indicators	AVG percent attainment	EAC Student Outcomes											CAC Student Outcomes											
		a	b	c	d	e	f	g	h	i	j	k	a	b	c	d	e	f	g	h	i	j	k	
a1	47	47											47											
a2	65	65																						
a3	76												76											
b1	81		81																					
b2	91		91																					
c1	88			88											88									
c2	88				88										88									
d1,d2	91				91											91								
e1	85					85											85							
e2	91						91							91										
f1	88							88										88						
f2	81								81										81					
f3	78									78										78				
g1	67										67										67			
h1	66											66											66	
h2	72																						72	
i1	91																						91	
j1	78																							78
k1	74																							74
k2	87																							87
L1	65																							65
L2	85																							85
m1	78																							78
Percent meeting Standards	47	47	81	88	91	85	88	67	66	91	78	74	47	91	88	91	78	67	72	91	87	65	78	

Table 4-A-4 (2012-13)

*ABET Student Outcomes achievement from Senior Survey
Percentage of students meeting Performance Standards*

CSE SO Indicators	AVG percent attainment	EAC Student Outcomes										CAC Student Outcomes											
		a	b	c	d	e	f	g	h	i	j	k	a	b	c	d	e	f	g	h	i	j	k
a1	43	43											43										
a2	52	52											52										
a3	52																						
b1	72		72																				
b2	79		79																				
c1	57			57											57								
c2	69														69								
d1,d2	76				76											76							
e1	83					83																	
e2	79												79										
f1	69						69																
f2	56																56						
f3	68																68						
g1	55							55															
h1	51								51														
h2	62																						
i1	73									73													
j1	62										62												
k1	45											45											
k2	72																						
L1	55																						
L2	69																						
m1	68																						
Percent meeting Standards		43	72	57	76	83	69	55	51	73	62	45	43	79	57	76	56	55	62	73	72	55	68

B. Continuous Improvement

Describe how the results of evaluation processes for the student outcomes and any other available information have been systematically used as input in the continuous improvement of the program. Describe the results of any changes (whether or not effective) in those cases where re-assessment of the results has been completed. Indicate any significant future program improvement plans based upon recent evaluations. Provide a brief rationale for each of these planned changes.

Annually, the Program Lead Faculty review all of the assessment changes and recommends curriculum and program changes as necessary to the CSE Steering Committee.

Changes in Selection for SO Assessment

Concomitant to the major change in the CSE degree requirements that occurred effective 2012, and as a direct result of interviews conducted by Program Lead Faculty with instructors in reviewing achievements of Student Outcomes, the association of course learning outcomes to courses was modified, adding or deleting Student Outcomes that could be subject to assessment in several courses. This also affected the subsequent selection of where certain Student Outcomes are to be assessed. These changes can be seen by viewing the various years' Table 4-A-1.

Changes in SO Assessment Process

As a result of continuing discussions with a number of sources on approaches needed to simultaneously address EAC and CAC requirements and also on the nature of the continuous improvement process, the set of student outcome indicators was modified each of the last several years, and is now stable for the coming academic year.

For 2008-09, the union of the sets of EAC and CAC outcomes was used to produce a set of locally harmonized outcomes. For 2009-10, some Student Outcomes were parsed to have two or three indicators. For 2010-11, the harmonized Student Outcomes were rewritten to conform much more closely to language in the ABET sets of Student Outcomes and indicators were used to clearly differentiate between elements relevant to either EAC or CAC or both. For 2011-12, in response to comments made by reviewers during the initial accreditation process, Indicator f2 was split into Indicators f2 and f3. Also, in response to a Program Observation made by reviewers in the initial accreditation process, CSE 151 was removed, and the content of CSE 112 was modified, so as to normalize the background of students in different degree programs who sit in cross-listed classes.

Note that the assessments in 2008-09 and, to a lesser extent, in 2009-10 were not necessarily restricted to only CSE students. This was corrected for the 2010-11 academic year and for all subsequent years so that only CSE students were assessed.

In 2010-11, the instructors of CSE 181A and CSE 181B failed to comment on the problematic attainment levels of several Indicators. These lack of comments were not

noticed until months later in October when the ABET review team conducted their site visit. This breakdown in the assessment process was addressed by requiring the Lead Faculty Member to review all FCARs immediately at the end of each quarter and to insist that all instructors address all concerns in the prose section of the FCAR. This process change was effective in succeeding years in ensuring that all FCARs contained qualitative as well as quantitative assessment data.

Changes in Course Implementation

As a direct result of interviews conducted by Program Lead Faculty with instructors in reviewing course outlines, inconsistencies were discovered between some course prerequisites listed by topic and course prerequisites listed by course number. Consequently, proposals were made to modify course prerequisites (in some cases to add, in others to delete).

The introductory programming sequence was substantially changed, effective 2012-13, replacing two 6-unit courses in Java (CSE 21,22) with three 4-unit courses in Python (CSE 41,42,43). In addition, a new course (CSE 45C) was introduced to transition students who learned one programming language (such as Python) into the C++ programming language, and CSE 23 was renumbered CSE 46 and changed its language of instruction from Java into C++.

Noting the low attainment levels in several Indicators, the CSE 135b (2009-10) instructor indicated on the FCAR his plan to tweak lab assignments involving DSP boards to correct ambiguities that caused confusion. The subsequent year's results indicate that these modifications were effective in improving student performance.

Noting the low attainment level of Indicator h1, the CSE 90 (2010-11) instructor indicated on the FCAR her plan to give more examples relevant to the impact of engineering solutions in the course lecture and homework. This plan turned out to be effective, as demonstrated by the subsequent year's attainment level of Indicator h1 in CSE 90 taught by that same instructor.

Poor student performance was observed in Student Outcome Indicators i1 and j1 (2010-11) in CSE 181A. Consequently, a guest lecturer from industry was brought in to lecture on the importance of contemporary issues and lifelong learning to practicing engineers today. Analysis of data from subsequent offerings of CSE 181A showed that this was sufficient to correct the problem.

After observing poor student performance in Student Outcome Indicator e2 (2011-12) in CSE 161, instructors were advised to more carefully calibrate problems posed to students in assessing this indicator and to monitor performance on similar problems so as to determine whether this was an instructional problem or an assessment problem. Analysis of data obtained from subsequent offerings of CSE 161 shows that this assessment problem has been corrected.

Pending Issues

As noted in section 4A, it is seen from Table 4-A-1 (2012-13) that there were problematic performance issues in CSE 135B affecting Student Outcome Indicators a1 and b2 and, to a lesser extent, c2. The instructor noted on his submitted FCAR that these were unexpected and anomalous when compared with student performance on these Indicators in other courses. The instructor will be following up on this matter during the next year. There also appeared to be problematic performance issues in CSE 181B affecting Student Outcome Indicators b1 and b2. The instructor explained on the FCAR that these low numbers may have been caused by his having used a new, averaging-based assessment approach different from that used in previous years without modifying the original performance standard.

In previous years, the CSE 181B instructor would assign an accomplishment level (an integer in the range 1 to 4) for a student on each Indicator using a rubric. This year, a student's performance level on each Indicator was assessed by several evaluators using the rubric, and the numerical average of the levels (a real number) was used as the student's performance grade. For example, if there were five evaluators, four of whom evaluated the student at level 3 and one of whom evaluated the student at level 2, then the student would be deemed to have performed at level 2.8. So, although almost all evaluators indicate that the student met the 3.0 performance standard, the student will be listed as having not met the standard. Careful consideration will be given to adjust the performance standard when using this assessment approach for the following year. It should be noted that if a performance standard of 2.8 had been used this year (instead of 3.0) for the CSE 181B course assessments then the attainment numbers for Indicators b1 and b2 would have been over 70%.

The Lead Faculty member brought both of these courses to the attention of the CSE Steering Committee as information items. The Lead Faculty member will discuss these issues with the instructors during and after the next year's offerings and, if these problems are not resolved, will bring them again to the CSE Steering Committee for discussion of possible action.

For several years, students were ambivalent about their abilities to apply probability and statistics. This matter was discussed with the CSE Steering Committee and, this year, it was decided to request the instructor of EECS 148 (the one course in the CSE curriculum that has statistics as a prerequisite) to add additional lectures or assignments that address the question of applying probability and statistics to CSE problems. The committee plans to revisit this issue next year.

This last year there were numerous problematic self-assessments across the board. This matter was discussed with the CSE Steering Committee. In theory, this could have been the result of problems in the curriculum or of problems with this particular cohort of CSE students. A difference of four or five underachieving CSE students would suffice to cause such a swing. We expect that an analysis of next year's assessment data will reveal the answer.

Minutes of the CSE Steering Committee meetings are maintained at:
<http://casa.eng.uci.edu/committees/cse>.

A summary of program improvements are maintained at:
http://casa.eng.uci.edu/accreditation/program_improvements.

C. Additional Information

Copies of any of the assessment instruments or materials referenced in 4.A and 4.B must be available for review at the time of the visit. Other information such as minutes from meetings where the assessment results were evaluated and where recommendations for action were made could also be included.

The following items will be available for review at the time of the visit.

- FCARs for 2011-2012 and 2012-2013
- CSE Steering Committee Meeting minutes 2004-2013
- Program Improvements 2004-2013:
http://casa.eng.uci.edu/accreditation/program_improvements

CRITERION 5. CURRICULUM

A. Program Curriculum

1. *Complete Table 5-1 that describes the plan of study for students in this program including information on course offerings in the required curriculum in the form of a recommended schedule by year and term along with maximum section enrollments for all courses in the program over the last two terms the course was offered. If there is more than one curricular path, Table 5-1 should be provided for each path. State whether you are on quarters or semesters and complete a separate table for each option in the program.*

See EAC Table 5-1 *Curriculum* and CAC Table 5-1 *Curriculum* at the end of this section.

2. *Describe how the curriculum aligns with the program educational objectives.*

The Computer Science and Engineering (CSE) undergraduate program is the primary method for our students to get prepared for meeting the Program Educational Objectives (PEO). The CSE core curriculum directly aligns with the PEOs as described below and presented in the Table 5-A-2 *CSE Curriculum Aligns with Program Educational Objectives*.

PEO 1: Establish a productive Computer Science and Engineering career in industry, government, or academia.

All of our CSE core courses prepare the students to achieve PEO 1. These courses cover key topics in computer science and engineering such as programming, logic design, network analysis, digital signal processing (DSP), computer architecture, compilers, algorithms, and software tools.

PEO 2: Engage in professional practice of computer systems engineering and software systems engineering.

The system engineering aspect of our program is covered by courses in DSP (CSE 135 A, CSE 135B), computer architecture and VLSI (CSE 112, CSE 132), and operating systems (CompSci 143A). The software systems development is covered by mainly by our courses in algorithms (CSE 161), compilers (CSE 142), tools (Informatics 43), and system engineering (CSE 90). Additionally, our capstone design experience covered in CSE 181A-B-CW is a major sequence of courses for this PEO. These courses provide our students with the essential tools to be effective and productive in computer systems and software design from all aspects of the development, namely hardware design and optimization, algorithm development and application mapping for embedded systems, and system software development.

PEO 3: Promote the development of innovative systems and solutions using hardware and software integration.

The main course that covers this particular PEO is our senior design course sequence. CSE 181A-B-CW satisfies the hardware and software integration component of the objective, since students have to engage in a project that covers software as well as

hardware design parameters. Also they have to propose, research, and implement their project idea to meet approved specifications. They must also apply innovative techniques to reduce power, which impact environmental as well as economics of the design, reduce the number of components used, influencing product affordability and meet computation performance requirements.

PEO 4: Promote design, research and implementation of products and services in the field of Computer Science and Engineering through strong communication, leadership and entrepreneurial skills.

The CSE 181A-B-CW series promotes research and development through sound communication skills as well as leadership and entrepreneurial skills. Since the CSE 181A-B-CW series requires teamwork, students learn how to communicate with each other in order to meet project needs, and distribute tasks among themselves. Additionally, they select a project leader and have Lead Students for the portions of the project such as hardware, software, environmental, etc. Another course aligned with this PEO is CSE 90, in which students practice all aspects of technical writing and improve their technical communication skills. Technical communication is important to further their career goals as an effective engineer.

Table 5-A-2
CSE Curriculum Aligns with Program Educational Objectives

PEO	Courses
1	Informatics 43, CompSci 143A, CSE 181A-B-CW, CSE 31, CSE 31L, CSE 41, CSE 42, CSE 43, CSE 45C, CSE 46, CSE 70A, CSE 90, CSE 112, CSE 120A, CSE 132, CSE 132L, CSE 135A, CSE 135B, CSE 141, CSE 142, CSE 145A-B, and CSE 161
2	Informatics 43, CompSci 143A, CSE 181A-B-CW, CSE 135A, CSE 135B, CSE 112, CSE 132, CSE 142, and CSE 90
3	CSE 181A-B-CW
4	CSE 181A-B-CW, CSE 90

3. *Describe how the curriculum and its associated prerequisite structure support the attainment of the student outcomes.*

As shown in Table 5-A-3 *Curriculum Structure Supports Student Outcomes*, the required courses in the CSE curriculum support attainment of all of the ABET-defined Student Outcomes. For each of the EAC and CAC, there is a column for each of Student Outcomes (a) through (k). For each course, an X is entered in columns corresponding to the Student Outcomes for which that course supports attainment. Equivalently, for each Student Outcome, an X is entered in rows corresponding to the courses which support

attainment of that Outcome. It is seen that attainment of each Student Outcome is supported by at least two courses.

Table 5-A-3
Curriculum Structure Supports Student Outcomes

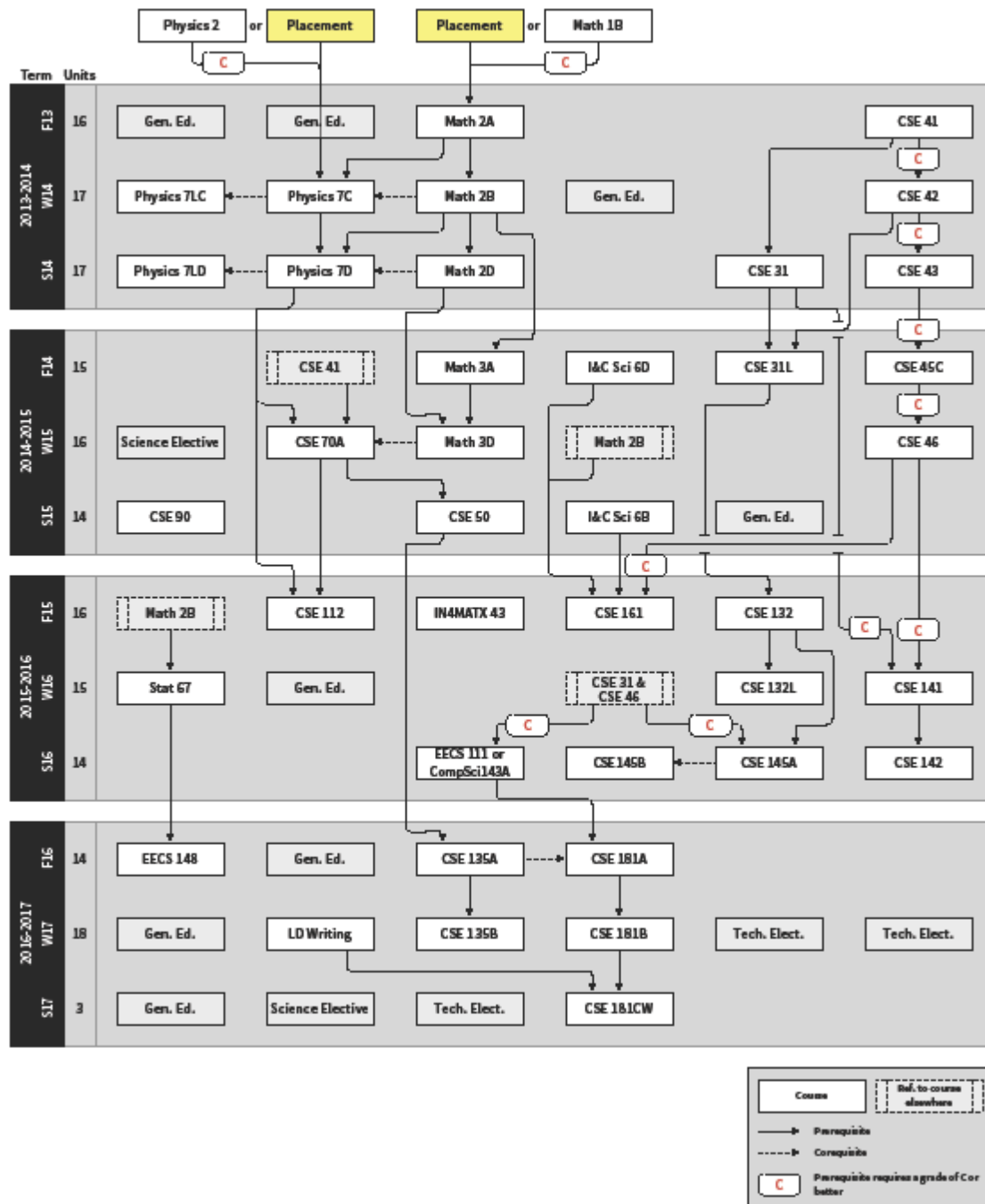
Courses	Courses support EAC SOs											Courses support CAC SOs										
	a	b	c	d	e	f	g	h	i	j	k	a	b	c	d	e	f	g	h	i	j	k
ICS 6B Boolean Algebra and Logic	X											X										
ICS 6D Discrete Mathematics for Computer Science	X											X										
Physics 7C/7LC, 7D/7LD Classical Physics/Lab	X																					
Informatics 43 Introduction to Software Engineering					X						X	X								X		X
CSE 31 Intro. To Digital Systems (EECS 31)		X	X		X							X		X								
CSE 31L Intro. To Digital Logic Laboratory (EECS 31L)	X	X	X		X	X	X		X		X	X		X		X				X		
CSE 41, 42, 43 Programming											X	X	X	X						X		X
CSE 46 Fundamental Data Structures												X	X	X						X		X
CSE 50 Discrete-time Signals and Systems (EECS 50)	X											X										
CSE 70A Network Analysis I (EECS 70A)	X										X	X										
CSE 90 Systems Engineering and Technical Communications						X	X	X	X	X						X	X	X	X			
EECS 111 System Software (or CS 143A)												X									X	
CSE 112 Electronic Devices and Circuits	X	X			X						X	X		X							X	
CSE 132 Organization of Digital Computers (EECS 112)	X	X	X		X				X	X	X	X	X	X						X	X	
CSE 132L Organization of Digital Computers Lab (EECS112L)	X				X			X	X	X	X	X								X		
CSE 135A Digital Signal Processing (EECS 152A)	X		X		X				X		X	X		X						X		
CSE 135B Digital Signal Proc'ing Design & Lab (EECS 152B)	X	X	X						X		X	X		X						X		
CSE 141 Concepts in Programming Languages I (CS 141)												X										
CSE 142 Compilers and Interpreters (CS 142A)												X									X	X
CompSci 143A Principles of Operating Systems												X									X	X
CSE 145A-B Embedded Computing Systems												X								X	X	
EECS 148 / CS 132 Computer Networks	X			X	X		X	X				X	X		X		X	X			X	
CSE 161 Design and Analysis of Algorithms (CS 161)	X											X	X									
CSE 181A Senior Design Project			X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	
CSE 181B Senior Design Project		X	X	X	X	X	X	X			X		X	X	X	X	X	X		X	X	X
CSE 181CW Senior Design Project (Writing)		X		X		X	X								X	X	X					

Updated: May 24, 2013

4. *Attach a flowchart or worksheet that illustrates the prerequisite structure of the program's required courses.*

Table 5-A-4 *Computer Science and Engineering Prerequisite Flowchart (2013-2014)* illustrates the prerequisite structure of the CSE program's required courses.

Table 5-A-4
Computer Science and Engineering
 Prerequisite Flowchart (2013-2014)



5. *Describe how your program meets the requirements in terms of hours and depth of study for each subject area (Math & Basic Sciences, Engineering Topics, and General Education) specifically addressed by either the general criteria or the program criteria.*

ABET curricular requirements are expressed in years, where one year is the lesser of 32 semester hours (48 quarter hours) or one-fourth of the total credits required for graduation. The CSE program requires 188 units (quarter hours) for graduation and so, for this program, one year is defined as $188/4 = 47$ units.

For the Engineering Accreditation Commission (EAC)

Students must have

- (a) one year of a combination of college level mathematics and basic sciences (47 units)
- (b) one and one-half years of engineering topics (71 units)

These requirements are met as shown in Table 5-1 (EAC)

The program must demonstrate that graduates have knowledge of:

Probability and statistics	Stat 67
Mathematics through differential and integral calculus	Math 2A, 2B
Discrete mathematics	ICS 6B, 6D
Basic sciences	Physics 7C, 7LC, 7D, 7LD
Computer science	CSE 41, 42, 43, 45C, 46
Engineering topics necessary to analyze and design complex software systems and systems containing hardware and software components:	
Hardware/Software Design	CSE 181 A-B-CW
Digital Signal Processing	CSE 135A, CSE 135B
Complex Software Systems (O/S)	CS 143A or EECS 111

For the Computing Accreditation Commission (CAC)

Refer to CAC Table 5-1 *Curriculum* to see overall Computing Topic unit satisfaction. Students have the following amounts of course work or equivalent educational experience:

- a. Computer science: One and one-third years (63 quarter units) that includes:
 - 1. Coverage of the fundamentals of:

Algorithms	CSE 161 (4)
Data structures	CSE 46 (4)
Software design	Informatics 43 (4)
Concepts of programming languages and computer organization and architecture	CSE 141 (4) CSE 132 (4)
 - 2. An exposure to a variety of programming languages and systems: CSE 31,31L (4,3)
 - 3. Proficiency in at least one higher-level language: CSE 41, 42, 43 (4,4,4)

4. Advanced course work that builds on the fundamental course work to provide depth: CSE 112,142 (4,4); EECS 148,111,112,113 (4,4,4,2); Technical Electives (4,4)
- b. One year of science and mathematics (47 quarter units):
 1. Mathematics: At least one half year (i.e., 24 units) that must include discrete mathematics.
The additional mathematics might consist of courses in areas such as calculus, linear algebra, numerical methods, probability, statistics, number theory, geometry, or symbolic logic.
Math 2A, 2B, 2D, 3A, 3D (4,4,4,4,4); ICS 6B, 6D (4,4); Stat 67 (4)
 2. Science: A science component that develops an understanding of the scientific method and provides students with an opportunity to experience this mode of inquiry in courses for science or engineering majors that provide some exposure to laboratory work. [CS]
Physics 7C, 7LC, 7D, 7LD (4,1,4,1); Science Electives (4,4)

Curriculum requirements associated with the program criteria for EAC and CAC are presented in the Program Criteria section of this report immediately following Criteria 8. Institutional Support.

6. *Describe the major design experience that prepares students for engineering practice. Describe how this experience is based upon the knowledge and skills acquired in earlier coursework and incorporates appropriate engineering standards and multiple design constraints.*

CSE 181A-B-CW Senior Design Project is the major design experience which is meant to prepare students for engineering practice. The course is a 3 quarter sequence in which the first two quarters are devoted to design and implementation of a system, and the final quarter is devoted to finalizing and enhancing their design documentation. Groups are formed of 2 to 4 students and each group develops a medium-scale system, composed of both hardware and software components. Each project must involve both hardware and software, and must have sufficient complexity to tax the students' abilities and make design completion time a real constraint.

Completing this course sequence draws on the students' knowledge gained from many of their earlier courses. All projects require the integration of hardware and software. So, all projects require an understanding of processors and microcontroller programming which they have gained from CSE 132 Organization of Digital Computers, CSE 145A Embedded Computing Systems, and CSE 145B Embedded Computing Laboratory. The software is relatively complex, requiring the programming knowledge that they gained in CSE 41 Introduction to Programming, CSE 42 Programming with Software Libraries, CSE 43 Intermediate Programming, and CSE 46 Fundamental Data Structures. All of the projects require knowledge of electronics, which they gain in CSE 70A Network Analysis I and CSE 112 Electronic Devices and Circuits, in order to understand the electrical properties of the sensors and actuators used, and to analyze and estimate

performance and power. All projects involve the development, implementation, and performance analysis of an algorithm of some complexity, requiring knowledge students have gained in CSE 161 Design and Analysis of Algorithms. In addition to these basic elements of all projects, each project will draw on skills gained in more domain-specific courses according to the individual project. For example, projects using digital signal processing will use their knowledge from the DSP course sequence. A project which uses a camera for image recognition will use knowledge from their Computer Vision course. A project which plays a game may use concepts from Artificial Intelligence to drive the game engine.

Students are forced to deal with standards because the integrated circuits and boards that are used in their projects have standardized communication interfaces. Serial communication standards typically used include I2C, SPI, and UART. Wireless communication standards are also common, including IEEE 802.11 and Zigbee, Bluetooth, and IRDA. Some projects also involve safety standards for use of potentially dangerous components such as IR lasers and power capacitors.

Satisfaction of multiple design constraints is a part of all projects. Completion time and cost are the primary constraints because all projects are due at the end of the second quarter and students pay for project components themselves. Power is a constraint on many systems because portability is a common design feature, making battery life and weight an issue. Timing is a constraint whose importance varies based on the application. For instance, projects involving real-time control have hard timing constraints, while a user interface typically has softer timing constraints. Projects are increasingly internet-enabled, making security a constraint.

7. *If your program allows cooperative education to satisfy curricular requirements specifically addressed by either the general or program criteria, describe the academic component of this experience and how it is evaluated by the faculty.*

No cooperatives are provided. However the UCI Career Center supports internships and resume development. See: <http://www.career.uci.edu/>

8. *Describe the materials (course syllabi, textbooks, sample student work, etc.), that will be available for review during the visit to demonstrate achievement related to this criterion. (See the 2013-2014 APPM Section II.G.6.b.(2) regarding display materials.)*

Course Materials Displays will be available for review during the visit to demonstrate achievement related to this criterion, per Section II.G.6.b.(2) of the 2013-2014 Accreditation Policy and Procedure Manual (APPM).

The Course Materials Displays contain:

- A. Course Syllabi (at UCI these documents are referred to as Course Outlines) include ABET-required material, as well as additional material.

- Course name and number, instructors' name(s), course coordinator's name, number of credits, meeting times, etc.
 - Textbook
 - Catalogue description, including prerequisites
 - Course Learning Outcomes
 - Mapping of the Course Learning Outcomes to the EAC and CAC Student Outcomes.
 - List of topics covered by the course
- B. Faculty Course Assessment Reports (FCAR)
- Student Outcome Indicators supported by the course.
 - Assessment plan showing which data from the course is used to assess each Student Outcome Indicator
 - Assessment of CSE students performance on each Student Outcome indicator supported by the course
 - Instructor recommendations
- C. Assignments and projects, tests, exams, and important handouts
- D. Sample student work (examples of graded high/medium/low quality of written submissions.)
- E. Student Outcome Folders for EAC (a) through (k) and CAC (a) through (k). Each Student Outcome Folder contains assessment evidence (direct and indirect) that show how well our students are prepared to achieve that particular Student Outcome

B. Course Syllabi

In Appendix A, include a syllabus for each course used to satisfy the mathematics, science, and discipline-specific requirements required by Criterion 5 or any applicable program criteria.

Syllabi for courses used to satisfy mathematics, science, and CSE program requirements as specified in *Criterion 5. Curriculum* are provided in Appendix A.

**EAC Table 5-1 Curriculum
Computer Science and Engineering**

Year/ Quarter	Course (Department, Number, Title)	Indicate Whether a Course is Required, Elective, or Selective Elective, by an R, an E, or an SE. ¹	Math & Basic Sciences	Engineering Topics <i>Check if Contains Significant Design</i> (✓)	General Education	Other	Last Two Terms the Course was Offered: Year and Quarter	Maximum Section Enrollment for the Last Two Terms the Course was Offered ²
1: Fall	MATH 2A Single- Variable Calculus	R	4				W13 S13	LEC 229 DIS 64
	CSE 41 Introduction to Programming	R		4			W13 S13	LEC 294 LAB 44
	General Education	E			4			
	General Education	E			4			
1: Winter	MATH 2B Single- Variable Calculus	R	4				W13 S13	LEC 234 DIS 73
	CSE 42 Programming with Software Libraries	R		4			W13 S13	LEC 312 LAB 45
	Physics 7C, 7LC Classical Physics and Classical Physics Laboratory	R	4,1				W13 S13	LEC 318 DIS 42 LAB 33
	General Education	E			4			
1: Spring	MATH 2D Multivariable Calculus	R	4				W13 S13	LEC 240 DIS 75
	CSE 43 Intermediate Programming	R		4			* S13	LEC 208 LAB 40
	Physics 7D, 7LD Classical Physics and Classical Physics Laboratory	R	4,1				W13 S13	LEC 298 DIS 42 LAB 33
	CSE 31 Introduction to Digital Systems	R		4 (2)(✓)			F12 S13	LEC 168 DIS 45
2: Fall	Mathematics 3A Introduction to Linear Algebra	R	4				W13 S13	LEC 118 DIS 73
	ICS 6D Discrete Mathematics for Computer Science	R	4				F12 W13	LEC 283 DIS 129
	CSE 45C Programming in C/C++ as a Second Language	R		4			F11 F12	LEC 107
	CSE 31L Introduction to	R		3 (3)(✓)			W12 W13	LEC 116 DIS 22

Year/ Quarter	Course (Department, Number, Title)	Indicate Whether a Course is Required, Elective, or Selective Elective, by an R, an E, or an SE. ¹	Math & Basic Sciences	Engineering Topics Check if Contains <i>Significant Design</i> (✓)	General Education	Other	Last Two Terms the Course was Offered: Year and Quarter	Maximum Section Enrollment for the Last Two Terms the Course was Offered ²
	Digital Logic Laboratory							
2: Winter	Mathematics 3D Elementary Differential Equations	R	4				W13 S13	LEC 120 DIS 74
	CSE 46 Data Structures Implementation and Analysis	R		4			F12 W13	LEC 170 DIS 170 LAB 45
	CSE 70A Network Analysis I	R		4 (1)(✓)			W13 S13	LEC 155 DIS 45
	Science Elective	SE	4					
2: Spring	ICS 6B Boolean Algebra and Logic	R	4				W13 S13	LEC 135 DIS 85
	CSE 50 Discrete- Time Signals and Systems	R		4			* S13	LEC 175 DIS 46
	CSE 90 Systems Engineering and Technical Communications	R		2			W12 W13	LEC 26
	General Education	E			4			
3: Fall	Informatics 43 Introduction to Software Engineering	R		4			F12 S13	LEC 240 DIS 60
	CSE 112 Electronic Devices and Circuits	R		4 (4)(✓)			F11 F12	LEC 40 DIS 41
	CSE 132 Organization of Digital Computers	R		4 (4)(✓)			W12 W13	LEC 73 DIS 45
	CSE 161 Design and Analysis of Algorithms	R		4			F12 W13	LEC 127 DIS 127
3: Winter	Statistics 67 Introduction to Probability and Statistics for Computer Science	R	4				W13 S13	LEC 120 DIS 60
	CSE 132L Organization of Digital Computers Laboratory	R		3 (3)(✓)			S12 S13	LEC 35 LAB 20
	CSE 141 Concepts in Programming	R		4			W13 S13	LEC 183 DIS 128

Year/ Quarter	Course (Department, Number, Title)	Indicate Whether a Course is Required, Elective, or Selective Elective, by an R, an E, or an SE. ¹	Math & Basic Sciences	Engineering Topics Check if Contains <i>Significant Design</i> (√)	General Education	Other	Last Two Terms the Course was Offered: Year and Quarter	Maximum Section Enrollment for the Last Two Terms the Course was Offered ²
	Languages I							LAB 49
	General Education				4			
3: Spring	CSE 142 Compilers and Interpreters	R		4			W13 S13	LEC 131 DIS 131 LAB 39
	CompSci 143A Principles of Operating Systems or EECS 111 System Software	SE		4			W13 S13 or S09 S10	LEC 147 DIS 128 or LEC 16 DIS 16
	CSE 145A Embedded Computing Systems	R		4			S12 S13	LEC 83
	CSE 145B Embedded Computing Systems Laboratory	R		2			S12 S13	LAB 59
4: Fall	CSE 135A Digital Signal Processing	R		3 (2)(√)			F11 F12	LEC 62 DIS 62
	CSE 181A Senior Design Project	R		3 (3)(√)			F11 F12	LEC 40 DIS 40 LAB 21
	EECS 148 / Comp Sci 132 Computer Networks	R		4 (2)(√)			F12 S13	LEC 112 DIS 112
	General Education	E			4			
4: Winter	CSE 135B Digital Signal Processing Design and Laboratory	R		3 (3)(√)			W12 W13	LEC 48 LAB 18
	CSE 181B Senior Design Project	R		3 (3)(√)			W12 W13	LEC 40 DIS 40 LAB 33
	Technical Elective	SE		4				
	General Education	E			4			
	General Education	E			4			
4: Spring	CSE 181CW Senior Design Project	R		3			S12 S13	LEC 37 DIS 37 LAB 37
	Technical Elective	SE		4				
	Science Education	SE	4					
	General Elective	E			5			
TOTAL ABET BASIC LEVEL REQUIREMENTS			50	101 (32)(√)	37	0		

Year/ Quarter	Course (Department, Number, Title)	Indicate Whether a Course is Required, Elective, or Selective Elective, by an R, an E, or an SE. ¹	Math & Basic Sciences	Engineering Topics <i>Check if Contains Significant Design</i> (√)	General Education	Other	Last Two Terms the Course was Offered: Year and Quarter	Maximum Section Enrollment for the Last Two Terms the Course was Offered ²
OVERALL TOTAL FOR DEGREE	188							
PERCENT OF TOTAL			27%	53%	20%	0%		
Totals must satisfy one set	Minimum quarter credit hours		48 hrs.	71 hrs.				
	Minimum percentage		25%	38%				

1. **Required** courses are required of all students in the program, **elective** courses (often referred to as open or free electives) are optional for students, and **selected elective** courses are those for which students must take one or more courses from a specified group.
2. For courses that include multiple elements (lecture, laboratory, recitation, etc.), indicate the maximum enrollment in each element. For selected elective courses, indicate the maximum enrollment for each option.

**CAC Table 5-1 Curriculum
Computer Science and Engineering**

Year/ Quarter	Course (Department, Number, Title)	Indicate Whether Course is Required, Elective, or Selective Elective, by an R, an E, or an SE. ¹	Math & Basic Sciences	Computing Topics Mark with an F or A for Fundamental or Advanced	General Education	Other	Last Two Terms the Course was Offered: Year and Quarter	Maximum Section Enrollment for the Last Two Terms the Course was Offered ²
1: Fall	MATH 2A Single-Variable Calculus	R	4				W13 S13	LEC 229 DIS 64
	CSE 41 Introduction to Programming	R		4 F			W13 S13	LEC 294 LAB 44
	General Education	E			4			
	General Education	E			4			
1: Winter	MATH 2B Single-Variable Calculus	R	4				W13 S13	LEC 234 DIS 73
	CSE 42 Programming with Software Libraries	R		4 F			W13 S13	LEC 312 DIS 45
	Physics 7C, 7LC Classical Physics and Classical Physics Laboratory	R	4,1				W13 S13	LEC 318 DIS 42 LAB 33
	General Education	E			4			
1: Spring	MATH 2D Multivariable Calculus	R	4				W13 S13	LEC 240 DIS 75
	CSE 43 Intermediate Programming	R		4 F			* S13	LEC 208 LAB 40
	Physics 7D, 7LD Classical Physics and Classical Physics Laboratory	R	4,1				W13 S13	LEC 298 DIS 42 LAB 33
	CSE 31 Introduction to Digital Systems	R		4 F			F12 S13	LEC 168 DIS 45
2: Fall	Mathematics 3A Introduction to Linear Algebra	R	4				W13 S13	LEC 118 DIS 73
	ICS 6D Discrete Mathematics for Computer Science	R	4				F12 W13	LEC 283 DIS 129
	CSE 45C Programming in C/C++ as a Second Language	R		4 F			F11 F12	LEC 107
	CSE 31L Introduction to Digital Logic	R		3 F			W13 S13	LEC 116 DIS 22

Year/ Quarter	Course (Department, Number, Title)	Indicate Whether Course is Required, Elective, or Selective Elective, by an R, an E, or an SE. ¹	Math & Basic Sciences	Computing Topics Mark with an F or A for Fundamental or Advanced	General Education	Other	Last Two Terms the Course was Offered: Year and Quarter	Maximum Section Enrollment for the Last Two Terms the Course was Offered ²
	Laboratory							
2: Winter	Mathematics 3D Elementary Differential Equations	R	4				W13 S13	LEC 120 DIS 74
	CSE 46 Data Structures Implementation and Analysis	R		4 F			F12 W13	LEC 170 DIS 170 LAB 45
	CSE 70A Network Analysis I	R				4	W13 S13	LEC 155 DIS 45
	Science Elective	SE	4					
2: Spring	ICS 6B Boolean Algebra and Logic	R	4				W13 S13	LEC 135 DIS 85
	CSE 50 Discrete- Time Signals and Systems	R				4	* S13	LEC 175 DIS 46
	CSE 90 Systems Engineering and Technical Communications	R				2	W12 W13	LEC 26
	General Education	E			4			
3: Fall	Informatics 43 Introduction of Software Engineering	R		4 F			F12 S13	LEC 240 DIS 60
	CSE 112 Electronic Devices and Circuits	R				4	F11 F12	LEC 40 DIS 41
	CSE 132 Organization of Digital Computers	R		4 A			W12 W13	LEC 73 DIS 45
	CSE 161 Design and Analysis of Algorithms	R		4 A			F12 W13	LEC 127 DIS 127
3: Winter	Statistics 67 Introduction to Probability and Statistics for Computer Science	R	4				W13 S13	LEC 120 DIS 60
	CSE 132L Organization of Digital Computers Laboratory	R		3 A			S12 S13	LEC 35 LAB 20
	CSE 141 Concepts in Programming	R		4 A			W13 S13	LEC 183 DIS 128

Year/ Quarter	Course (Department, Number, Title)	Indicate Whether Course is Required, Elective, or Selective Elective, by an R, an E, or an SE. ¹	Math & Basic Sciences	Computing Topics Mark with an F or A for Fundamental or Advanced	General Education	Other	Last Two Terms the Course was Offered: Year and Quarter	Maximum Section Enrollment for the Last Two Terms the Course was Offered ²
	Languages I							LAB 49
	General Education	E			4			
3: Spring	CSE 142 Compilers and Interpreters	R		4 A			W13 S13	LEC 131 DIS 131 LAB 39
	CompSci 143A Principles of Operating Systems or EECS 111 System Software	SE		4 A			W13 S13 or S09 S10	LEC 147 DIS 128 or LEC 16 DIS 16
	CSE 145A Embedded Computing Systems	R		4 A			S12 S13	LEC 83
	CSE 145B Embedded Computing Systems Laboratory	R		2 A			S12 S13	LAB 59
4: Fall	CSE 135A Digital Signal Processing	R				3	F11 F12	LEC 62 DIS 62
	CSE 181A Senior Design Project	R				3	F11 F12	LEC 40 DIS 40 LAB 21
	EECS 148 / Comp Sci 132 Computer Networks	R		4 A			F12 S13	LEC 112 DIS 112
	General Education	E			4			
4: Winter	CSE 135B Digital Signal Processing Design and Laboratory	R				3	W12 W13	LEC 48 LAB 18
	CSE 181B Senior Design Project	R				3	W12 W13	LEC 40 DIS 40 LAB 33
	Technical Elective	SE				4		
	General Education	E			4			
	General Education	E			4			
4: Spring	CSE 181CW Senior Design Project	R				3	S12 S13	LEC 37 DIS 37 LAB 37
	Technical Elective	SE				4		
	Science Education	SE	4					
	General Elective	E			5			
TOTAL ABET BASIC			50	64	37	37		

Year/ Quarter	Course (Department, Number, Title)	Indicate Whether Course is Required, Elective, or Selective Elective, by an R, an E, or an SE. ¹	Math & Basic Sciences	Computing Topics Mark with an F or A for Fundamental or Advanced	General Education	Other	Last Two Terms the Course was Offered: Year and Quarter	Maximum Section Enrollment for the Last Two Terms the Course was Offered ²
LEVEL REQUIREMENTS								
OVERALL TOTAL FOR DEGREE	188							
PERCENT OF TOTAL			27%	34%	20%	19%		
Totals must satisfy one set	Minimum quarter credit hours		48 hrs.	63 hrs.				
	Minimum percentage		25%	33%				

1. **Required** courses are required of all students in the program, **elective** courses (often referred to as open or free electives) are optional for students, and **selected elective** courses are those for which students must take one or more courses from a specified group.
2. For courses that include multiple elements (lecture, laboratory, recitation, etc.), indicate the maximum enrollment in each element. For selected elective courses, indicate the maximum enrollment for each option.

CRITERION 6. FACULTY

A. Faculty Qualifications

Describe the qualifications of the faculty and how they are adequate to cover all the curricular areas of the program. This description should include the composition, size, credentials, and experience of the faculty. Complete Table 6-1. Include faculty resumes in Appendix B.

The total number of regular faculty in the Department of Electrical Engineering and Computer Science (EECS) in The Henry Samueli School of Engineering (HSSoE) during the Academic Year 2012-13 was thirty-two (32) consisting of twenty-one Professors, eight Associate Professors, and three Assistant Professors. All received their Ph.D. degrees from prestigious universities. Of the 32 EECS faculty, eleven have their Ph.D. in Computer Science (or closely related such as ICS), twenty-one have their Ph.D. in Electrical Engineering (or closely related, such as Computer Engineering), and two have their Ph.D. in Physics. For 2012-13, three lecturers were hired for their expertise and experience in a specific area or specialization. Generally, only lecturers with PhDs are hired in the EECS department, with one exception, the technical writing instructor. For the last several years, the writing instructor has been hired from industry for his expertise in technical writing to teach the upper-division technical writing course associated with the senior design project.

The total number of regular faculty in the Department of Computer Science (CS) in the Donald Bren School of Information and Computer Sciences (Bren School of ICS) during the Academic Year 2012-2013 was forty-one (41) consisting of twenty-eight Professors, seven Associate Professors, four Assistant Professors, and two Lecturers with Security of Employment (SOE). The two Lecturers with SOE received M.S. degrees from prestigious universities. All other regular faculty received their Ph.D. degrees from prestigious universities. Of the 41 CS faculty, twenty-nine have their highest degree in Computer Science, three in Electrical Engineering, three in Electrical Engineering and Computer Science, one in Civil Engineering, one in Mathematics, one in Physics, one in Computer Neuroscience, one in Artificial Intelligence, and one in Scientific Computing. Additionally, some Lecturers are hired for their expertise and pertinent experience in a specific area or specialization, especially for teaching computer science to first year students.

The faculty in the CSE program is a subset of the faculty from the EECS and CS departments. These faculty members teach required or selective elective courses in the CSE program, or support the program by providing guidance or oversight by being on the CSE Steering Committee. During the Academic Year 2012-13 there were 31 regular faculty members in the CSE program, including fourteen (15) from EECS, consisting of 11 Professors, 3 Associate Professors, and 1 Assistant professor, and sixteen (16) from CS, consisting of 11 Professors, 2 Associate Professors, 1 Assistant Professor, and 2 Lecturers with Security of Employment (SOE). Note that any individual faculty member may be listed as member of the CSE faculty one year and not be listed in a subsequent year, or vice-versa, by virtue of the fact that teaching assignments and committee service obligations vary from year to year. Many of the faculty who are not CSE program faculty members for 2012-13 have been or will be CSE program faculty members for other years.

B. Faculty Workload

Complete Table 6-2, Faculty Workload Summary, and describe this information in terms of workload expectations or requirements.

The normal faculty workload is four courses annually for faculty actively conducting research publications, research grant management and graduate student supervision. Faculty members typically teach at least three courses per year, normally a minimum of one undergraduate course per year and at least one course per quarter. Recent record of refereeing, archival researching for publications, research grant management responsibilities, and graduate student thesis and dissertation supervision affect the annual teaching load for individual faculty.

Part-time faculty members are supervised by the department chair and their evaluation/review follow the normal cycle of the Academic Personnel directives of the Academic Senate.

C. Faculty Size

Discuss the adequacy of the size of the faculty and describe the extent and quality of faculty involvement in interactions with students, student advising and counseling, university service activities, professional development, and interactions with industrial and professional practitioners including employers of students.

The size of the faculty in the CS and EECS departments, 73 in total as listed in Section A above, is more than sufficient to cover both the number and breadth of courses in the undergraduate Computer Science and Engineering (CSE) curriculum.

In addition to the direct interaction with students in the classroom as instructors, many faculty members participate in academic advising of our majors in annual student advising sessions and assist with the evaluation of the senior design projects at the annual Senior Design Expo Day (typically held in March). Many faculty members also have the opportunity to advise students on a one-to-one basis when discussing matters with them during scheduled weekly office hours. Additionally, many of our faculty members are involved in undergraduate research projects (UROP program).

To receive external feedback, faculty members meet and have discussions with industry affiliates (CSE Industrial Advisory Board) at the biannual CSE retreat (typically held in October) and the annual Senior Design Expo Day (typically held in March).

D. Professional Development

Describe the professional development activities that are available to faculty members.

Faculty in the Departments of Computer Science (CS) and of Electrical Engineering and Computer Science (EECS) regularly attend national and international conferences of prestigious organizations such as the American Association for the Advancement of Sciences (AAAS), Association of Computing Machinery (ACM) or the Institute of Electrical and

Electronics Engineers (IEEE). At these conferences faculty present papers and are invited speakers. The conference organizers often pay the expenses of the speaker.

Many EECS faculty members request a budget for conference attendance in their research funding proposals. In the CS department, faculty members are provided a discretionary fund that is often used for conferences.

The senior faculty members in CS and in EECS serve as mentors to the junior faculty (those without tenure) and assist with their professional development. The Senior Faculty mentors the junior faculty through the tenure process by advising them on the balanced content of the cases they present for merits and promotion. The CS Department holds annual mentoring sessions in which each assistant professor meets with a panel of senior faculty to review progress and goals leading towards tenure.

All CS and EECS faculty are continuously in pursuit of excellence in presentations and recognition for UCI by achieving status that rewards them with memberships in prestigious societies and organizations.

The EECS faculty has achieved recognition and/or has been inducted as members of prestigious institutions:

- 2 National Academy of Engineering members
- 14 IEEE Fellows
- 2 AAAS Fellows
- 1 Optical Society of America Fellow
- 1 Member of Academia Sinica (Taiwan)
- 3 ISI Highly Cited Researchers
- 7 NSF CAREER & ONR YI Awards

The CS faculty has achieved recognition and/or has been inducted as members of prestigious institutions:

- 1 National Academy of Engineering member
- 5 IEEE Fellows
- 2 IEEE Technical Achievement Awards
- 5 ACM Fellows
- 3 ACM Distinguished Scientists/Members
- 2 AAAS Fellows
- 3 AAAI Fellows
- 3 Fulbright Scholars
- 4 NSF CAREER Awards (recent)

E. Authority and Responsibility of Faculty

Describe the role played by the faculty with respect to their guidance of the program, and in the development and implementation of the processes for the assessment, evaluation, and continuing improvement of the program, including its program educational objectives and student outcomes. Describe the roles of others on campus, e.g., dean or provost, with respect to these areas.

The EVC/Provost formed the CSE Steering Committee with faculty from both the Department of Computer Science in the Donald Bren School of Information and Computer Sciences and the Department of Electrical Engineering and Computer Science in The Henry Samueli School of Engineering to oversee the CSE program. The CSE Steering Committee is made up of six faculty members, three from EECS and three from CS. The CSE Steering Committee members are appointed for three-year rotating terms. A Chair who serves a one-year term convenes the CSE Steering Committee. A Vice Chair, serving a one-year term, normally accedes to the Chair the following year. The Chair and Vice Chair may not be from the same academic unit. The Chair is given a one-course relief from instructional obligations by his or her department. One faculty member from each school serves as accreditation coordinator for the program and is expected to work with faculty from their unit on accreditation and assessment. The Associate Dean of Student Affairs (or equivalent) from each school serve ex-officio to assist with school-to-school issues. One academic counselor from each of the two academic units advises the administrative committee. The chairs of the CS and EECS departments also attend CSE Steering Committee meetings to assist with departmental issues.

The CSE Steering Committee meets regularly once a month.

Duties and Authority:

Specific to the undergraduate program in Computer Science and Engineering (CSE) the CSE Steering Committee has the following responsibilities:

- Consider all matters related to academic policy; and make recommendations regarding curricula, course availability, course enrollment policy and other educational matters.
- Ensure that students receive sufficient academic and career advising. Serve as faculty advisors for CSE majors, review petitions and exceptions to established policy, provide policy and oversight for academic probation and academic dishonesty.
- Ensure that undergraduate admissions and change of major into CSE serves the interest of the students and program.
- Maintain liaison with committees responsible for undergraduate policies for both schools.

The faculties of the EECS and CS departments have the following responsibilities regarding the CSE undergraduate program:

- Review recommendations received from the CSE Steering Committee and vote on whether or not to approve them.
- Assess the achievement of Student Outcomes associated with the courses that an individual faculty member teaches and suggest improvements to the courses, the curriculum, and the assessment process.

Table 6-1. Faculty Qualifications
Computer Science and Engineering faculty

Faculty Name	Rank ¹	Type ²	FT or PT ³	Highest Degree Earned And Field	Institution from which Highest Degree Earned & Year	Years of Experience (as of July 1, 2013)			Professional Registration / Certification	Level of Activity ⁴ (High, Medium, or Low)		
						Govt/ Industry Practice	Teaching	This Institution		Professional Organizations	Professional Development	Consulting/summer work in industry
Shannon Alfaro	I	NTT	FT	M.S., Computer Science	Univ. of California, Irvine, 2002	2	11	11		Low	Low	High
Mark Bachman	AST	TT	FT	Ph.D., Experimental Particle Physics	University of Texas, 1994	0	15	15		High	High	Low
Nader Bagherzadeh	P	T	FT	Ph.D., Computer Engineering	University of Texas, 1987	12	26	26		High	High	Low
Pierre Baldi	P	T	FT	Ph.D., Mathematics	California Institute of Technology, 1986	7	30	14		High	High	Low
Lubomir Bic	P	T	FT	Ph.D.,	Univ. of California,	1	33	33		High	High	Low

				Computer Science	Irvine, 1979							
Elaheh Bozorgzadeh	ASC	T	FT	Ph.D., Computer Science	Univ. of California, Los Angeles, 2003	0	10	10		High	High	Low
Franco De Flaviis	P	T	FT	Ph.D., Electrical Engineering	Univ. of California, Los Angeles, 1997	3	15	15		High	High	Low
Michael Dillencourt	P	T	FT	Ph.D., Computer Science	University of Maryland, 1988	10	24	24		High	High	Low
Rainer Doemer	ASC	T	FT	Ph.D., Information & Computer Science	University of Dortmund, Germany, 2000	8	10	10		High	High	Low
Ahmed Eltawil	ASC	T	FT	Ph.D., Integrated Circuits & Systems	Univ. of California, Los Angeles, 2003	7	8	8		High	High	Low
Jeff Foresta	I	NTT	PT	B.A., Music Education	Univ. of California, Santa Barbara, 1987	26	13	13		Low	Low	High
Daniel D. Gajski	P	T	FT	Ph.D., Computer Science	University of Pennsylvania, 1974	16	37	26		High	High	Low
Tony Givargis	P	T	FT	Ph.D., Computer Science	Univ. of California, Riverside, 2001	4	12	12		High	High	Low

Michael T. Goodrich	P	T	FT	Ph.D., Computer Science	Purdue University, 1987	1	24	12		High	High	Low
Michael M. Green	P	T	FT	Ph.D., Electrical Engineering	Univ. of California, Los Angeles, 1991	15	21	16		High	High	Low
Wayne Hayes	ASC	T	FT	Ph.D., Numerical Analysis and Scientific Computing	University of Toronto, 2001	3	10	9		High	High	Low
Glenn E. Healey	P	T	FT	Ph.D., Computer Science	Stanford University, 1988	4	24	24		High	High	Low
Daniel Hirschberg	P	T	FT	Ph.D., Computer Science	Princeton University, 1975	0	38	32		High	High	Low
Alexander Ihler	AST	TT	FT	Ph.D., Electrical Engineering & Computer Science	Mass. Institute of Technology, 2005	0	6	6		High	High	Low
Sandy Irani	P	T	FT	Ph.D., Computer Science	Univ. of California, Berkeley, 2001	0	22	22		High	High	Low
Syed A. Jafar	ASC	T	FT	Ph.D., Electrical Engineering	Stanford University, 2003	3	9	9		High	High	Low
Hamid	P	T	FT	Ph.D.,	University of	16	11	11		High	High	Low

Jafarkhani				Electrical Engineering	Maryland, 1997							
David G. Kay	I	T	FT	J.D. M.S., Computer Science	Loyola Law School, 1976 Univ. of California, Los Angeles, 1981	0	32	22		Low	Low	High
Fadi Kurdahi	P	T	FT	Ph.D., Computer Engineering	University of Southern California, 1987	10	26	26		High	High	Low
Richard H. Lathrop	P	T	FT	Ph.D., Artificial Intelligence	Mass. Institute of Technology, 1990	10	16	18		High	High	Low
Henry P. Lee	P	T	FT	Ph.D., Electrical Engineering	Univ. of California, Berkeley, 1989	4	21	21		High	High	Low
Kwei-Jay Lin	P	T	FT	Ph.D., Computer Science	University of Maryland, 1985	0	28	20		High	High	Low
Alexandru Nicolau	P	T	FT	Ph.D., Computer Science	Yale University, 1984	0	28	26		High	High	Low
Richard Pattis	I	T	FT	M.S., Computer Science	Stanford University, 1985	0	37	6		Low	Low	High
Amelia C. Regan	P	T	FT	Ph.D., Civil Engineering	University of Texas, 1997	5	16	16		High	High	Low

Phillip C.-Y. Sheu	P	T	FT	Ph.D., Electrical Engineering and Computer Science	Univ. of California, Berkeley, 1986	0	26	20		High	High	Low
A. Lee Swindlehurst	P	T	FT	Ph.D., Electrical Engineering	Stanford University, 1991	11	23	6		High	High	Low
Alex Thornton	I	NTT	FT	B.S., Information and Computer Science	Univ. of California, Irvine, 1996	9	12	12		Low	Low	High
Nalini Venkatasubramanian	P	T	FT	Ph.D., Computer Science	Univ. of Illinois, 1998	7	15	15		High	High	Low

Other faculty in the EECS and CS departments

Faculty Name	Rank ¹	Type ²	FT or PT ³	Highest Degree Earned And Field	Institution from which Highest Degree Earned & Year	Years of Experience (as of July 1, 2013)			Professional Registration / Certification	Level of Activity ⁴ (High, Medium, or Low)		
						Govt/ Industry Practice	Teaching	This Institution		Professional Organizations	Professional Development	Consulting/summer work in industry

Mohammed Al Faruque	AST	TT	FT	Ph.D., Computer Science and Engineering	University of Karlsruhe, 2009	0	1	1		High	High	Low
Animashree Anandkumar	AST	TT	FT	Ph.D., Electrical Engineering	Cornell University, 2009	1	3	3		High	High	Low
Ender Ayanoglu	P	T	FT	Ph.D., Electrical Engineering	Stanford University, 1986	16	12	11		High	High	Low
Ozdal Boyraz	ASC	T	FT	Ph.D., Electrical Engineering	University of Michigan, 2001	4	8	8		High	High	Low
Elaheh Bozorgzadeh	ASC	T	FT	Ph.D., Computer Science	Univ. of California, Los Angeles, 2003	0	10	10		High	High	Low
Peter J. Burke	P	T	FT	Ph.D., Physics	Yale University, 1998	4	12	12		High	High	Low
Filippo Capolino	ASC	T	FT	Ph.D., Electrical Engineering	University of Florence, 1997	10	11	5		High	High	Low
Michael Carey	P	T	FT	Ph.D., Computer Science	Univ. of California, Berkeley, 1983	14	16	5		High	High	Low
Pai H. Chou	P	T	FT	Ph.D., Computer Science and Engineering	University of Washington, 1998	5	14	14		High	High	Low

Rina Dechter	P	T	FT	Ph.D., Computer Science	Univ. of California, Los Angeles, 1985	3	25	23		High	High	Low
Brian Demsky	ASC	T	FT	Ph.D., Computer Science	Mass. Institute of Technology, 2006	9	7	7		High	High	Low
Nikil Dutt	P	T	FT	Ph.D., Computer Science	University of Illinois, 1989	2	23	24		High	High	Low
Paniz Ebrahimi	I	NTT	PT	Ph.D., Electrical Engineering	University of Southern California, 2004	19	16	3		Low	Low	High
Magda El Zarki	P	T	FT	Ph.D., Electrical Engineering	Columbia University, 1988	0	26	13		High	High	Low
David Eppstein	P	T	FT	Ph.D., Computer Science	Columbia University, 1989	1	22	23		High	High	Low
Jeff Foresta	I	NTT	PT	B.A., Music Education	Univ. of California, Santa Barbara, 1987	26	13	13		Low	Low	High
Charless Fowlkes	AST	TT	FT	Ph.D., Computer Science	Univ. of California, Berkeley, 2005	2	6	6		High	High	Low
Michael Franz	P	T	FT	Doctor of Technical Sciences, Computer	ETH Zurich, Switzerland, 1994	0	17	15		High	High	Low

				Science								
Daniel Frost	I	NTT	FT	Ph.D., Info. and Computer Science	Univ. of California, Irvine, 1997	13	15	15		Low	Low	High
Jean-Luc Gaudiot	P	T	FT	Ph.D., Computer Science	Univ. of California, Los Angeles, 1982	4	30	11		High	High	Low
Ian G. Harris	ASC	T	FT	Ph.D., Computer Science	Univ. of California, San Diego, 1997	0	16	10		High	High	Low
Payam Heydari	P	T	FT	Ph.D., Electrical Engineering	University of Southern California, 2001	4	12	12		High	High	Low
Ramesh C. Jain	P	T	FT	Ph.D., Electronics & E. Communications Engineering	Indian Institute of Technology, 1975	6	36	10		High	High	Low
Stanislaw Jarecki	ASC	T	FT	Ph.D., Computer Science Theory	Mass. Institute of Technology, 2001	4	10	10		High	High	Low
Scott Jordan	P	T	FT	Ph.D., Electrical Engineering and	Univ. of California, Berkeley, 1990	3	22	22		High	High	Low

				Computer Science								
Alireza Kavianpour	I	NTT	PT	Ph.D., Computer Engineering	University of Southern California, 1978	16	34	14		Low	Low	High
Stuart Kleinfelder	ASC	T	FT	Ph.D., Electrical Engineering	Stanford University, 2001	17	12	12		High	High	Low
Alfred Kobsa	P	T	FT	Ph.D., Computer Science	University of Vienna, 1985	2	29	12		High	High	Low
Chin C. Lee	P	T	FT	Ph.D., Electrical Engineering	Carnegie-Mellon University, 1979	3	29	29		High	High	Low
Chen Li	P	T	FT	Ph.D., Computer Science	Stanford University, 2001	1	12	12		High	High	Low
Guann-Pyng Li	P	T	FT	Ph.D., Electrical Engineering	Univ. of California, Los Angeles, 1983	5	25	25		High	High	Low
Aditi Majumder	ASC	T	FT	Ph.D., Computer Science	Univ. of North Carolina, Chapel Hill, 2003	4	12	10		High	High	Low
Athina Markopoulou	ASC	T	FT	Ph.D., Electrical Engineering	Stanford University, 2002	2	7	7		High	High	Low
Gopi	ASC	T	FT	Ph.D.,	University of North	1	12	12		High	High	Low

Meenakshisundaram				Computer Science	Carolina at Chapel Hill, 2001							
Sharad Mehrotra	P	T	FT	Ph.D., Computer Science	University of Texas at Austin, 1993	1	19	15		High	High	Low
Eric D. Mjolsness	P	T	FT	Ph.D., Physics & Computer Science	California Institute of Technology, 1985	5	19	11		High	High	Low
Deva Ramanan	ASC	T	FT	Ph.D., Electrical Engineering & Computer Science	Univ. of California, Berkeley, 2005	0	6	6		High	High	Low
Isaac Scherson	P	T	FT	Ph.D., Computer Science	Weizmann Institute of Science, 1983	15	42	23		High	High	Low
Keyue M. Smedley	P	T	FT	Ph.D., Electrical Engineering	California Institute of Technology, 1991	7	21	21		High	High	Low
Padhraic Smyth	P	T	FT	Ph.D., Electrical Engineering	California Institute of Technology, 1988	22	18	17		High	High	Low
Chen S. Tsai	P	T	FT	Ph.D., Electrical Engineering	Stanford University, 1965	2	45	33		High	High	Low

Gene Tsudik	P	T	FT	Ph.D., Computer Science	University of Southern California, 1991	5	13	13		High	High	Low
Alexander V. Veidenbaum	P	T	FT	Ph.D., Computer Science	Univ. of Illinois, 1985	2	28	15		High	High	Low
Max Welling	P	T	FT	Ph.D., Physics	Utrecht University, Netherlands, 1998	0	10	10		High	High	Low
H. Kumar Wickramasinghe	P	T	FT	Ph.D., Electrical Engineering	University of London, 1974	29	12	7		High	High	Low
Xiaohui Xie	AST	TT	FT	Ph.D., Neural Computation	Mass. Institute of Technology, 2002	0	6	6		High	High	Low
Harry Xu	AST	TT	FT	Ph.D., Computer Science	The Ohio State University, 2011	3	2	2		High	High	Low

Instructions: Complete table for each member of the faculty in the program. Add additional rows or use additional sheets if necessary. Updated information is to be provided at the time of the visit.

1. Code: P = Professor ASC = Associate Professor AST = Assistant Professor I = Instructor A = Adjunct O = Other
2. Code: T = Tenured TT = Tenure Track NTT = Non Tenure Track
3. Code: FT = Full-time PT = Part-time Appointment at the institution.
4. The level of activity (high, medium or low) should reflect an average over the year prior to the visit plus the two previous years.

Table 6-2. Faculty Workload Summary
Computer Science and Engineering faculty

Faculty Member	PT or FT ¹	Classes Taught (Course No./Credit Hrs.) ⁶	Term ^{2,4}	Year ²	Program Activity Distribution ³			% of Time Devoted to the Program ⁵
					Teaching	Research or Scholarship ⁴	Other	
Shannon Alfaro	FT	I&C Sci 139W (4) I&C Sci 139W (4)	F	2012	72	0	28	22
		CSE 141 (4) I&C Sci 53 (4) I&C Sci 53L (2)	W	2013				
		CSE 142 (4) I&C Sci 139W (4)	S	2013				
Mark Bachman	FT	EECS129A (2) EECS179 (4) CSE 181A (3) EECS189A (2) EECS296 (v) EECS297 (v) EECS299 (v)	F	2012	33	33	33	21
		EECS129B (2) CSE 181B (3) EECS189B (2) BME199 (v) EECS199 (v) ENGR H199 (v) BME296 (v) EECS296 (v) EECS297 (v) BME297 (v) EECS299 (v) BME299 (v)	W	2013				
		ENGR H196W (4) BME199 (v) BME296 (v) EECS296 (v) BME297 (v) EECS297 (v) EECS299 (v)	S	2013				
Nader Bagherzadeh	FT	EECS296 (v) EECS297 (v)	F	2012	22	56	22	16

		EECS299 (v)						
		CSE 132 / EECS112 (4) EECS230 (4) EECS297 (v) EECS299 (v)	W	2013				
		EECS295 (2) EECS296 (v) EECS297 (v) EECS299 (v)	S ⁴	2013				
Pierre Baldi	FT	CompSci 290 (2) CompSci 298 (v) CompSci 299 (v)	F ⁴	2012	22	56	22	28
		BME299 (v) I&C Sci 6D (4) CompSci 290 (2) CompSci 296 (4) CompSci 298 (v) CompSci 299 (v)	W	2013				
		BME299 (v) CompSci 290 (2) CompSci 298 (v) CompSci 299 (v)	S	2013				
Lubomir Bic	FT	CompSci 290 (2) CompSci 298 (v) CompSci 299 (v)	F	2012	33	33	33	17
		CompSci 290 (2) CompSci 299 (v) I&C Sci 51 (6)	W	2013				
		CompSci 143B (4) CompSci 290 (2) CompSci 298 (v) CompSci 299 (v) I&C Sci 6B (4) Uni Stu 3 (1)	S	2013				
Elaheh Bozorgzadeh	FT	CompSci 200S (1) CompSci 295 (4) CompSci 298 (v) CompSci 299 (v)	F ⁴	2012	22	56	22	12
		CompSci 200S (1) CompSci 244 (4) CompSci 298 (v)	W	2013				
		CompSci 153 (4) CompSci 200S (1)	S	2013				
Franco De Flaviis	FT	EECS297 (v) EECS299 (v)	F	2012	33	33	33	19

		CSE 70A / EECS70A (4) EECS70LA (1) EECS189B (2) EECS297 (v) EECS299 (v)	W	2013				
		EECS70LA (1) EECS182 (4) EECS199 (v) EECS296 (v) EECS297 (v) EECS299 (v)	S	2013				
Michael Dillencourt	FT	I&C Sci 6D (4) CompSci 290 (2) CompSci 298 (v) CompSci 299 (v)	F	2012	33	33	33	30
		CcompSci 260 (4) CompSci 290 (2) CompSci 298 (v) CompSci 299 (v)	W	2013				
		CSE 104/CompSci 143A (4) CompSci 290 (2) CompSci 298 (v) CompSci 299 (v)	S	2013				
Rainer Doemer	FT	EECS22 (3) EECS129A (2) EECS295 (2) EECS296 (v) EECS297 (v) EECS299 (v)	F	2012	33	33	33	33
		EECS22L (3) EECS129B (2) EECS189B (2) EECS295 (2) EECS296 (v) EECS297 (v) EECS299 (v)	W	2013				
		EECS222A (3) EECS295 (v) EECS297 (v) EECS299 (v)	S	2013				
Paniz Ebrahimi	PT	CSE 135A / EECS152A (3)	F	2012	22	0	78	9
		EECS140 (4)	W	2012				
Ahmed Eltawil	FT	EECS189A (2)	F ⁴	2012	22	56	22	10

		EECS297 (v) EECS299 (v)						
		EECS141A (3) EECS195 (4) EECS297 (v) EECS299 (v)	W	2013				
		EECS112L (3) EECS244 (4) EECS297 (v) EECS299 (v)	S	2013				
Jeff Foresta	PT	Engr 190W (4)	F	2012	44	0	56	9
		Engr 190W (4)	W	2013				
		CSE 181CW (3) Engr 190W (4)	S	2013				
Daniel D. Gajski	FT	CSE 31 (4) EECS295 (v) EECS299 (v)	F	2012	33	33	33	41
		CSE 31L (3) EECS129B (0)	W	2013				
		CSE 31 (4) EECS295 (2) EECS297 (v) EECS299 (v)	S	2013				
Tony Givargis	FT	CompSci 199 (v) CompSci 298 (v) CompSci 299 (v) I&C Sci 192 (2) I&C Sci 399 (4)	F	2012	33	33	33	52
		CompSci 153 (4) CompSci 199 (v) CompSci 299 (v) I&C Sci 399 (4)	W	2013				
		CompSci 145A (4) CompSci 145B (2) CompSci 298 (v) CompSci 299 (v) I&C Sci 399 (4)	S	2013				
Michael T. Goodrich	FT	CompSci 269S (2) CompSci 299 (v) CSE 161 (4)	F	2012	10	20	70	45
		CompSci 299 (v)	W	2013				
		CompSci 299 (v)	S	2013				
Michael M. Green	FT	EECS189A (2) EECS295 (v) EECS296 (v) EECS297 (v)	F	2012	10	20	70	35

		EECS299 (v)						
		EECS129B (2) EECS189B (2) EECS270C (4) EECS296 (v) EECS297 (v) EECS299 (v)	W	2013				
		EECS170C (4) EECS170LC (1) EECS297 (v) EECS299 (v)	S	2013				
Wayne Hayes	FT	CompSci 199 (v) CompSci 299 (v) I&C Sci 6B (4) I&C Sci 6N (4)	F	2012	33	33	33	19
		CompSci 248B (4) CompSci 299 (v)	W	2013				
		CompSci 299 (v)	S	2013				
Glenn E. Healey	FT	EECS189A (2) EECS297 (v) EECS299 (v)	F ⁴	2012	22	56	22	12
		EECS101 (3) EECS129B (2) EECS189B (2) EECS199 (v) EECS297 (v) EECS299 (v)	W	2013				
		EECS50 (4) EECS297 (v) EECS299 (v)	S	2013				
Daniel Hirschberg	FT	CompSci 260 (4)	F	2012	33	33	33	50
		CSE 161 (4)	W	2013				
		---	S	2013				
Alexander Ihler	FT	CompSci 178 (4) CompSci 273A (4) CompSci 290 (2) CompSci 298 (v) CompSci 299 (v)	F	2012	33	33	33	33
		CompSci H198 (4) CompSci 290 (2) CompSci 298 (v) CompSci 299 (v)	W	2013				
		CompSci H198 (4) CompSci 290 (2) CompSci 298 (v) CompSci 299 (v)	S	2013				

		I&C Sci 77B (4)						
Sandy Irani	FT	CompSci 299 (v)	F	2012	22	33	44	22
		CompSci 299 (v)	W	2013				
		CompSci 262 (4) CompSci 269S (2) CompSci 299 (v)	S	2013				
Syed A. Jafar	FT	EECS292 (v) EECS293 (v) EECS295 (v) EECS299 (v)	F	2012	33	33	33	41
		EECS292 (v) EECS293 (v) EECS297 (v) EECS299 (v)	W	2013				
		CSE 70A / EECS70A (4) EECS242 (3) EECS292 (v) EECS297 (v) EECS299 (v)	S	2013				
Hamid Jafarkhani	FT	EECS297 (v) EECS299 (v)	F ⁴	2012	22	56	22	10
		EECS55 (4) CSE 181B (2) EECS297 (v) EECS299 (v)	W	2013				
		EECS245 (4) EECS297 (v) EECS299 (v)	S	2013				
David G. Kay	FT	CSE 41 (4) I&C Sci 80 (4) I&C Sci 90 (1) I&C Sci 193 (2) I&C Sci 398A (2) UniStu 4 (1)	F	2012	78	0	22	32
		CSE 41 (4) I&C Sci 4 (4) I&C Sci 80 (4) UniStu 197B (2)	W	2013				
		CompSci 199 (v) I&C Sci 139W (4) UniStu 197C (2)	S	2013				
Fadi Kurdahi	FT	EECS297 (v) EECS299 (v)	F	2012	33	33	33	39
		EECS129B (2) CSE 181B (2)	W	2013				

		EECS221 (4) EECS297 (v) EECS299 (v)						
		EECS113 (4) EECS297 (v) EECS299 (v)	S	2013				
Richard H. Lathrop	FT	I&C Sci H197 (4) CompSci 171 (4) CompSci H198 (4) CompSci 199 (v) CompSci 298 (v)	F	2012	33	33	33	33
		CompSci H198 (4) CompSci 199 (v) CompSci 271 (4) CompSci 298 (v)	W	2013				
		CompSci H198 (4) CompSci 199 (v) CompSci 298 (v)	S	2013				
Henry P. Lee	FT	EECS170A/LA (4) CSE 112 (4) EECS297 (v)	F	2012	33	33	33	15
		EECS170B (4) EECS170LB (1) EECS174 (4) CSE181B (2) EECS189B (2) EECS297 (v)	W	2013				
		EECS 199 (v)	S	2013				
Kwei-Jay Lin	FT	EECS12 (4) EECS297 (v) EECS299 (v)	F	2012	33	33	33	13
		EECS297 (v) EECS299 (v)	W	2013				
		EECS219 (4) EECS223 (3) EECS297 (v) EECS299 (v)	S	2013				
Alexandru Nicolau	FT	I&C Sci 51 (6) CompSci 243 (4) CompSci 298 (v) CompSci 299 (v)	F	2012	22	56	22	22
		CompSci 295 (4) CompSci 298 (v) CompSci 299 (v)	W ⁴	2013				
		CompSci 299 (v)	S	2013				
Richard Pattis	FT	CSE 46 (4)	F	2012	56	0	44	56

		I&C Sci 90 (1) I&C Sci 193 (2)						
		CSE 46 (4) I&C Sci 7 (4)	W	2013				
		CSE 41 (4) CSE 43 (4) I&C Sci 80 (4)	S	2013				
Amelia C. Regan	FT	CompSci H198 (4) CompSci 199 (v) CompSci 298 (v) CompSci 299 (v) UniStu 3 (1)	F	2012	33	33	33	41
		CSE 90 (2) I&C Sci 6B (4) CompSci 299 (v)	W	2013				
		CompSci 298 (v) CompSci 299 (v)	S	2013				
Phillip C.-Y. Sheu	FT	EECS116 (4) EECS118 (4) EECS221 (4) EECS299 (v)	F	2012	33	33	33	33
		EECS129B (2) EECS296 (v) EECS299 (v)	W	2013				
		EECS299 (v)	S	2013				
A. Lee Swindlehurst	FT	EECS189A (2) EECS250 (4) EECS297 (v) EECS299 (v)	F	2012	33	33	33	19
		CSE 135B / EECS152B (3) CSE181B (2) EECS189B (2) EECS297 (v) EECS299 (v)	W	2013				
		EECS1 (1) EECS297 (v) EECS299 (v)	S	2013				
Alex Thornton	FT	CSE 22 (6) I&C Sci 65 (4) I&C Sci 80 (4) In4matx 122 (4)	F	2012	72	0	28	43
		CSE 42 (4)	W	2013				
		CSE 42 (4) I&C Sci 80 (4) CSE 141 (4)	S	2013				

Nalini Venkatasubramanian	FT	CompSci 299 (v)	F	2012	33	33	33	25
		CSE 104/CompSci 143A (4)	W	2013				
		CompSci 298 (v)						
		CompSci 299 (v)						
		CompSci 237 (4)	S	2013				
		CompSci 299 (v)						

Other faculty in the EECS and CS departments

Faculty Member	PT or FT ¹	Classes Taught (Course No./Credit Hrs.) ⁶	Term ²	Year ^{2,4}	Program Activity Distribution ³			% of Time Devoted to the Program ⁵
					Teaching	Research or Scholarship ⁴	Other	
Mohammad Al Faruque	FT	EECS221 (4)	W	2013	33	33	33	8
		EECS117 (3)	S	2013				
Animashree Anandkumar	FT	EECS189A (2)	F	2012	33	33	33	8
		EECS150 (4)	W	2013				
		EECS189B (2)						
		EECS251B (4)						
		EECS299 (v)	S	2013				
Ender Ayanoglu	FT	EECS189A (2)	F	2012	33	33	33	8
		EECS241A (4)						
		EECS297 (v)						
		EECS299 (v)						
		EECS241B (4)	W	2013				
		EECS189B (2)						
		EECS297 (v)						
		EECS299 (v)						
Peter J. Burke	FT	EECS141B (3)	S	2013	0	100	0	0
		EECS296 (v)						
		EECS297 (v)						
		EECS299 (v)						
		EECS296 (v)	F ⁴	2012				
		EECS189B (2)	W ⁴	2013				
		EECS296 (v)						

		BME296 (v) EECS297 (v) EECS299(v)						
		EECS293 (v) EECS297 (v) BME297 (v) EECS299 (v)	S ⁴	2013				
Filippo Capolino	FT	EECS280A (4) EECS296 (v) EECS297 (v) EECS299 (v)	F	2012	33	33	33	8
		EECS144 (4) EECS189B (2) EECS297 (v) EECS299 (v)	W	2013				
		EECS280B (4) EECS297 (v) EECS299 (v)	S	2013				
Michael Carey	FT	CompSci 298 (v) CompSci 299 (v)	F	2012	33	33	33	8
		CompSci 122A (4) CompSci 298 (v) CompSci 299 (v)	W	2013				
		CompSci 122C (4) CompSci 222 (4) CompSci 290 (2) CompSci 299 (v)	S	2013				
Pai H. Chou	FT	EECS295 (2) EECS296 (v) EECS297 (v) EECS299 (v)	F ⁴	2012	0	100	0	0
		EECS295 (2) EECS296 (v) EECS297 (v) CompSci 299 (v) EECS299 (v)	W ⁴	2013				
		EECS296 (v) EECS297 (v) EECS299 (v)	S ⁴	2013				
Rina Dechter	FT	CompSci 271 (4) CompSci 298 (v) CompSci 299 (v)	F	2012	33	33	33	8
		CompSci 298 (v) CompSci 299 (v)	W	2013				
		CompSci 276 (4) CompSci 298 (v)	S	2013				

		CompSci 299 (v)						
Brian Demsky	FT	EECS114 (4) EECS129A (2) EECS215 (4) EECS296 (v) EECS297 (v) EECS299 (v)	F	2012	33	33	33	8
		EECS296 (v) EECS297 (v) EECS299 (v)	W	2013				
		EECS40 (4) EECS296 (v) EECS297 (v) EECS299 (v)	S	2013				
Nikil Dutt	FT	EECS296 (v) EECS297 (v) CompSci 151 (4) CompSci 290 (2) CompSci 298 (v) CompSci 299 (v)	F	2012	33	33	33	8
		EECS296 (v) EECS297 (v) CompSci 259S (2) CompSci 290 (2) CompSci 298 (v) CompSci 299 (v)	W	2013				
		EECS297 (v) CompSci 290 (2) CompSci 295 (4) CompSci 298 (v) CompSci 299 (v)	S	2013				
Magda El Zarki	FT	---	F ⁴	2012	0	100	0	0
		---	W ⁴	2013				
		---	S ⁴	2013				
David Eppstein	FT	CompSci 299 (v)	F ⁴	2012	22	56	0	6
		CompSci 163 (4) CompSci 265 (4) CompSci 290 (2) CompSci 269S (2) CompSci 299 (v)	W	2013				
		CompSci 261 (4) CompSci 290 (2) CompSci 299 (v)	S	2013				
Charless Fowlkes	FT	I&C Sci 162 (4) CompSci 216 (4) CompSci 298 (v)	F	2012	33	33	33	8

		CompSci 299 (v)						
		CompSci 116 (4) CompSci H198 (4) CompSci 298 (v) CompSci 299 (v)	W	2013				
		CompSci H198 (4) CompSci 199 (v) CompSci 299 (v)	S	2013				
Michael Franz	FT	CompSci 290 (2) CompSci 299 (v)	F	2012	33	33	33	8
		CompSci 241 (4) CompSci 290 (2) CompSci 298 (v) CompSci 299 (v)	W	2013				
		CompSci 290 (2) CompSci 299 (v)	S	2013				
Jean-Luc Gaudiot	FT	EECS129A (2) EECS213 (4) EECS295 (2) EECS296 (v) EECS297 (v) EECS299 (v)	F	2012	33	33	33	8
		EECS296 (v) EECS297 (v) EECS299 (v)	W	2013				
		EECS297 (v)	S	2013				
Ian G. Harris	FT	CompSci 199 (v) CompSci 298 (v) CompSci 299 (v) UniStu 3 (1)	F ⁴	2012	22	56	22	6
		CompSci 199 (v) CompSci 298 (v) CompSci 299 (v) I&C Sci 160 (4) UniStu 3 (1)	W	2013				
		CompSci 199 (v) CompSci 252 (4) CompSci 298 (v)	S	2013				
Payam Heydari	FT	EECS189A (2) EECS270A (4) EECS297 (v) EECS299 (v)	F	2012	33	33	33	8
		EECS170E (4) EECS297 (v) EECS299 (v)	W	2013				
		EECS270B (3)	S	2013				

		EECS297 (v) EECS299 (v)						
Ramesh C. Jain	FT	CompSci 199 (v) CompSci 298 (v) CompSci 299 (v)	F	2012	33	33	33	8
		I&C Sci 61 (4) CompSci 190 (4) CompSci 295 (4) CompSci 298 (v) CompSci 299 (v)	W	2013				
		CompSci 212 (4) CompSci 298 (v) CompSci 299 (v)	S	2013				
Stanislaw Jarecki	FT	CompSci 299 (v)	F	2012	33	33	33	8
		CompSci 201 (4) CompSci 299 (v)	W	2013				
		CompSci 167 (4) CompSci 299 (v)	S	2013				
Scott Jordan	FT	CompSci 132 (4) CompSci 232 (4) CompSci 299 (v)	F	2012	33	33	33	8
		CompSci 299 (v)	W	2013				
		CompSci 299 (v)	S	2013				
Stuart Kleinfelder	FT	EECS275B (4) EECS297 (v) EECS299 (v)	F	2012	33	33	33	8
		EECS297 (v) EECS299 (v)	W	2013				
		EECS217 (4) EECS275A (4) EECS297 (v) EECS299 (v)	S	2013				
Alfred Kobsa	FT	In4matx 290 (2) In4matx 298 (v) In4matx 299 (v)	F ⁴	2012	0	100	0	0
		In4matx 290 (2) In4matx 298 (v) In4matx 299 (v)	W ⁴	2013				
		In4matx 290 (2) In4matx 298 (v) In4matx 299 (v)	S ⁴	2013				
Chin C. Lee	FT	EECS145 (4) EECS189A (2) EECS277A (4) EECS299 (v)	F	2012	33	33	33	8
		EECS129B (2)	W	2013				

		EECS176 (4) CSE181B (2) EECS189B (2) EECS299 (v)						
		EECS199 (v) EECS297 (v) EECS299 (v)	S	2013				
Chen Li	FT	CompSci 122C (4) CompSci 222 (4) CompSci 298 (v) CompSci 299 (v)	F	2012	33	33	33	8
		CompSci 122B (4) CompSci 299 (v)	W	2013				
		CompSci 298 (v) CompSci 299 (v)	S	2013				
Guann-Pyng Li	FT	EECS189A (2) EECS199 (v) Engr 260A (4) EECS295 (v) EECS297 (v) EECS299 (v)	F	2012	33	33	33	8
		EECS129B (2) EECS189B (2) ENGR H196W (4) EECS199 (v) EECS297 (v) EECS299 (v)	W	2013				
		EECS297 (v) EECS299 (v)	S	2013				
Aditi Majumder	FT	CompSci 211A (4) CompSci 299 (v)	F	2012	33	33	33	8
		CompSci 299 (v)	W	2013				
		CompSci 112 (4) CompSci 213 (4) CompSci 299 (v)	S	2013				
Athina Markopoulou	FT	EECS299 (v)	F ⁴	2012	0	100	0	0
		EECS299 (v)	W ⁴	2013				
		Net Sys 295 (1) EECS299 (v)	S ⁴	2013				
Gopi Meenakshisundaram	FT	CompSci 299 (v)	F	2012	33	33	33	8
		CompSci 112 (4) CompSci 299 (v)	W	2013				
		CompSci 114 (4) CompSci 298 (v) CompSci 299 (v)	S	2013				
Sharad Mehrotra	FT	CompSci 290 (2)	F	2012	33	33	33	8

		CompSci 299 (v)						
		CompSci 223 (4) CompSci 299 (v)	W	2013				
		CompSci 122A (4) CompSci 299 (v)	S	2013				
Eric D. Mjolsness	FT	CompSci 175 (4)	F	2012	33	33	33	8
		CompSci 184B (4) CompSci 284B (4)	W	2013				
		CompSci 184C (4) CompSci 284C (4)	S	2013				
Deva Ramanan	FT	CompSci H198 (4) CompSci 199 (v) CompSci 299 (v) I&C Sci 162 (4)	F	2012	33	33	33	8
		CompSci 299 (v) I&C Sci 139W (4)	W	2013				
		CompSci 117 (4) CompSci 299 (v)	S	2013				
Isaac Scherson	FT	CompSci 290 (2) CompSci 298 (v) CompSci 299 (v)	F	2012	33	33	33	8
		CompSci 152 (4) CompSci 230 (4) CompSci 298 (v) CompSci 299 (v)	W	2013				
		CompSci 242 (4) CompSci 298 (v) CompSci 299 (v)	S	2013				
Keyue M. Smedley	FT	EECS160A/LA (4) EECS296 (v) EECS297 (v) EECS299 (v)	F	2012	22	56	22	6
		EECS189B (2) EECS267A (4) EECS297 (v) EECS299 (v)	W	2013				
		EECS297 (v)	S ⁴	2013				
Padhraic Smyth	FT	CompSci 290 (2) CompSci 299 (v) Stats 298 (v)	F	2012	33	33	33	8
		CompSci 274A (4) CompSci 290 (2) CompSci 299 (v) Stats 299 (v)	W	2013				
		CompSci 290 (2) CompSci 298 (v)	S	2013				

		CompSci 299 (v)						
Chen S. Tsai	FT	EECS180A (4) EECS189A (2) EECS296 (v) EECS297 (v) EECS299 (v)	F	2012	22	56	22	6
		EECS296 (v) EECS297 (v)	W ⁴	2013				
		EECS180B (4) EECS297 (v)	S	2013				
Gene Tsudik	FT	CompSci 298 (v) CompSci 299 (v) NetSys 295 (1)	F	2012	33	33	33	8
		CompSci 299 (v) NetSys 295 (1)	W	2013				
		Net Sys 295 (1) CompSci 299 (v)	S	2013				
Alexander Veidenbaum	FT	CompSci 298 (v) CompSci 299 (v)	F	2012	33	33	33	8
		CompSci 250A (4) CompSci 298 (v)	W	2013				
		CompSci 250B (4) CompSci 298 (v) CompSci 299 (v)	S	2013				
Max Welling	FT	CompSci 298 (v) CompSci 299 (v)	F ⁴	2012	0	100	0	0
		CompSci 298 (v) CompSci 299 (v)	W ⁴	2013				
		CompSci 298 (v) CompSci 299 (v)	F ⁴	2013				
H. Kumar Wickramasinghe	FT	EECS188 (4) EECS297 (v) EECS299 (v)	F	2012	11	78	11	3
		EECS297 (v) EECS299 (v)	W ⁴	2013				
		BME297 (v) CBEMS297 (v) EECS297 (v) EECS299 (v)	S ⁴	2013				
Xiaohui Xie	FT	CompSci 184A (4) CompSci 284A (4) CompSci 298 (v) CompSci 299 (v)	F	2012	33	33	33	8
		CompSci 298 (v) CompSci 299 (v)	W	2013				
		CompSci 189 (4)	S	2013				

		CompSci 206 (4) CompSci 298 (v) CompSci 299 (v)						
Guoqing (Harry) Xu	FT	CompSci 299 (v)	F	2012	33	33	33	8
		CompSci 142B (4) CompSci 299 (v)	W	2013				
		CompSci 253 (4) CompSci 299 (v)	S	2013				

1. FT = Full Time Faculty or PT = Part Time Faculty, at the institution
2. For the academic year for which the self-study is being prepared.
3. Program activity distribution should be in percent of effort in the program and . Faculty should total 100%.
4. Indicate sabbatical leave, etc., under "Research or Scholarship."
5. Out of the total time employed at the institution.
6. (v) = variable units

CRITERION 7. FACILITIES

A. Offices, Classrooms and Laboratories

Summarize each of the program's facilities in terms of their ability to support the attainment of the program educational objectives and student outcomes and to provide an atmosphere conducive to learning.

1. *Offices (such as administrative, faculty, clerical, and teaching assistants) and any associated equipment that is typically available there.*

The offices for administration, faculty, staff, and teaching assistants in the Donald Bren School of Information and Computer Sciences (Bren ICS) are located in three buildings: Donald Bren Hall (DBH), Information & Computer Science (ICS), and Information & Computer Science 2 (ICS2). The offices for The Henry Samueli School of Engineering (HSSoE) are located in Engineering Tower (ET), Engineering Hall (EH), Rockwell Engineering Center (REC), Engineering Gateway (EG), and Engineering & Computing Trailer (ECT). In both Bren ICS and HSSoE, all staff members are provided with desktop computers. Faculty have computers from various sources, including research grants, start-up packages, discretionary funds provided by the Schools or the UCI desktop computing initiative. Teaching assistants for CSE courses who are enrolled in the Computer Science graduate program are provided with computing equipment that supports their research as well as their instructional activities. Teaching assistants in both Schools typically have desktop computers provided by their research advisors. In addition, all incoming graduate students to the Department of Computer Science are provided with a laptop upon their arrival. In the Department of Electrical Engineering and Computer Science, teaching assistants have access to office and laboratory space in Engineering Hall to hold office hours.

2. *Classrooms and associated equipment that is typically available where the program courses are taught.*

Classrooms required by the Departments of Computer Science (CS) and of Electrical Engineering and Computer Science (EECS), as well as those needed by the other engineering departments and programs are obtained through negotiations between the Schools' Undergraduate Student Affairs Offices and Central Administration.

Computer Science and Engineering (CSE) courses are typically scheduled in the Information and Computer Science building, Donald Bren Hall, in the Engineering buildings, and in technology-enhanced classrooms on campus. Rooms range in size from 30 to 124 seats. Almost all CSE classes are scheduled in technology-enhanced classrooms equipped with a Windows computer, laptop audio/video connections, internet connection, VHS/DVD deck, AMX touch-panel controller, data projector, speakers, overhead transparency projector and help phone. A few CSE classes are scheduled in theater-style lecture halls with additional equipment including a document camera, CD/cassette deck, writing tablet, gooseneck microphone, wireless microphone, and preview monitor. For smaller classes, the campus has many small classrooms with

standard equipment. The departments are satisfied with classroom set-ups and have not experienced any problems with these arrangements.

3. *Laboratory facilities including those containing computers (describe available hardware and software) and the associated tools and equipment that support instruction. Include those facilities used by students in the program even if they are not dedicated to the program, and state the times they are available to students. Complete Appendix C containing a listing the major pieces of equipment used by the program in support of instruction.*

The Computer Science and Engineering (CSE) undergraduate program has adequate to excellent instructional laboratories that are divided into Computer Science laboratories and Engineering laboratories.

Donald Bren School of Information and Computer Sciences (Bren School of ICS):

Information and Computer Science Laboratories are used to teach the following courses:

- Informatics 43 Introduction to Software Engineering
(Software used: Java)
- CSE 41 Introduction to Programming
(Software used: Windows 7, Python 3, an IDE such as IDLE or Eclipse)
- CSE 42 Programming with Software Libraries
(Software used: Windows 7, Python 3, an IDE such as IDLE or Eclipse)
- CSE 43 Intermediate Programming
(Software used: Windows 7, Python 3, an IDE such as IDLE or Eclipse)
- CSE 45C Programming in C/C++ as a Second Language
(Software used: C++)
- CSE 46 Data Structures Implementation and Analysis
(Software used: C++)
- CSE 141 Concepts in Programming Languages I
(Software used: Windows XP, Textpad, Java)
- CSE 142 Compilers and Interpreters
(Software used: J2SE, the Java 2 Standard Edition SDK)
- CSE 181A-B Senior Design Project.
(Software used: Determined by choice of components)

The labs are in rooms ICS 183, ICS 189, ICS 192, and ICS 364. All rooms come with standard teaching equipment: instructor computer workstation, data projector, projection screen, white board, and campus phone.

ICS 183, 189, and 192 each have 45 computers and a maximum capacity of 45. Hours for ICS 183, 189, and 192 are:

8:00 AM-8:00 PM Monday-Friday

ICS 364 has 87 PC computers. Hours for ICS 364 are:

8:00 AM-10:00 PM Monday-Thursday

8:00 AM-8:00 PM Friday

12:00 PM-6:00 PM Saturday-Sunday

A hardware/software lab has been created to support CSE 181A-B-CW Senior Design Project.

See Appendix C - *Equipment* for a full list of equipment.

The Henry Samueli School of Engineering (HSSoE):

Engineering Laboratories are used to teach the following courses:

CSE 31L Introduction to Digital Logic Laboratory

(Software used: Xilinx Foundation series and ModelSim simulating)

CSE 132L Organization of Digital Computers Laboratory

(Software used: Cadence VHDL)

CSE 135B Digital Signal Processing Design and Laboratory

(Software used: C/C++, MATLAB)

CSE 181A-B Senior Design Project

(Software used: Determined by choice of components)

See Appendix C - *Equipment* for a full list of equipment.

B. Computing Resources

Describe any computing resources (workstations, servers, storage, networks including software) in addition to those described in the laboratories in Part A, which are used by the students in the program. Include a discussion of the accessibility of university-wide computing resources available to all students via various locations such as student housing, library, student union, off-campus, etc. State the hours the various computing facilities are open to students. Assess the adequacy of these facilities to support the scholarly and professional activities of the students and faculty in the program.

The Bren School of ICS provides computer labs and computing clusters to its students. The open lab in ICS 364 is open seven days a week during the quarter with hours posted at the lab and on-line. The software on the systems is listed on-line. Students also have access to 36 linux systems available individually or as a cluster of systems. Students have access to disk storage for projects. ICS Helpdesk is available during working hours to assist students with computing related questions via walk-in, phone or email.

In addition to the computing resources described in Part A, The Henry Samueli School of Engineering provides laboratories that are available to be used by the students in the Computer Science and Engineering (CSE) program. The laboratories are located in rooms MSTB 224, EH 1131, EH 1141, and EH 1151. All rooms come with standard teaching equipment: instructor computer workstation, data projector, projection screen, white board, campus phone and TA work station.

- MSTB 224 has 54 PC computers and 1 TA station. This room is accessible Monday-Friday, 8:00am-10:00pm, and Saturday 8:00am-6:00pm.
- EH 1131, EH 1141, and EH 1151 each have 24 PC computers and a maximum capacity of 24, in addition to 1 TA station. These rooms are accessible 7 days a week, Monday-Sunday, 7:00am-10:00pm.

The Office of Information Technology (OIT) is responsible for meeting the IT needs of UC Irvine faculty, staff, and students. The mission of OIT is to support and enhance instruction, research, scholarship, and administration through effective management and use of IT resources.

OIT supports accessibility of university-wide computing resources to all students online and via various locations such as student housing, library, and the student center. Online resources include e-mail accounts, a learning management system (and many course instructional systems such as course casting), and access to the wired and wireless campus network connected to the Internet at high speeds/capacity. At many locations on campus approximately 500 desktop computers are available to all UCI students in both schedulable and drop-in style computing laboratories and classrooms. The computers in these locations contained modern office productivity and communication software as well as course specific, scientific, mathematical and engineering applications. More systems are also available to students in the residence hall common areas as well as access to the campus network from resident rooms. Most locations are available after normal business hours. Some locations are available 24/7. A campus help desk is available 24/7 to assist students with computing and networking services provided by OIT as well as general help in these areas.

OIT supports the scholarly and research activities of the students and faculty via several services. Large scale research computing facilities are available on campus as well as through high speed network connections to the national supercomputing sites operated by NSF and DOE. Local research computing expertise is also available in many subject areas in science and engineering from OIT staff as well as through coordination efforts between OIT and School and Departmental experts. OIT also supports campus research groups through both co-location of research computers in OIT data centers and by providing system administration services.

C. Guidance

Describe how students in the program are provided appropriate guidance regarding the use of the tools, equipment, computing resources, and laboratories.

Most of the classrooms allow the instructor to demonstrate software tools to the students (i.e., the classrooms have machines and projection screens) in lecture.

The CSE introductory programming courses (and some advanced courses) meet in regularly scheduled labs (1.5-2 hours), where instructors can also demonstrate software using iTALC: a program that allows students at their machines to see what the instructor is doing on his/her machine. At that point students can explore the software themselves, typically under the supervision of a Teaching Assistant or Lab Tutor, an advanced undergraduate student in lab

who helps to answer questions and guide the students. Lab tutors all have taken the class they are tutoring, so they are well versed in the tools used.

Outside of these scheduled labs, there is a large computer lab (typically open 8am-10pm) where students can work and have questions answered by the staff (and of course, other students).

The classrooms in Engineering Hall are equipped with state of the art multimedia, computing, wired and wireless networking allowing TAs to utilize these resources in conjunction with installed software tools to provide the necessary support for lab and discussion sessions.

In CSE 135B, the TA meets with students three times a week in the DSP lab. The TA spends the first hour of each lab session giving details about the assignment at a white board, and demonstrating the procedures with a lab station that all students can see (the lab is relatively small, with only 12 stations, so the students can easily see what is going on). After the initial one-hour introduction, students work in pairs at individual stations under supervision of the TA, who circulates among students giving suggestions and answering questions.

In CSE 112, the TA uses (1) PSPICE for circuit simulation, (2) Microwind for layout generation/extraction, and (3) DSCH for logic simulation. As the TA monitors their progress in the lab, students start by simulating their design using PSPICE. Next, they will use Microwind to generate a layout. Finally, they will utilize the last tool for performing complex circuit design and modeling effort.

D. Maintenance and Upgrading of Facilities

Describe the policies and procedures for maintaining and upgrading the tools, equipment, computing resources, and laboratories used by students and faculty in the program.

Within the School of ICS, facilities upgrades/renovations are commonly proposed by members of the ICS Senior Management Team (the school's senior managers from each area and the Dean's Office staff), typically during regularly scheduled team meetings. Decisions regarding the Instructional Lab spaces are made at this level, after options are identified and cost analysis is done. Decisions on which equipment to buy and when are made by the ICS Computing Support group, managed by Bill Cohen. Computers are replaced on a rotating schedule; each Instructional Lab receives new equipment at four year intervals. Computers are purchased with a three-year warranty and, typically, refurbished and/or lease returned equipment is chosen so as to leverage available funding. Bill Cohen submits funding requests to the ICS Assistant Dean in March of each year, to support the Fiscal Year starting the following July.

When problems with equipment in the labs arise, students and faculty are instructed to email helpdesk@ics.uci.edu. This generates a "Service Ticket" that can be seen and acted on by any Computing Support Staff, who update the information on the ticket system as they perform work. This allows seamless workflow by all staff members who take part in

resolution of the issue, while also indicating response times and other information to help with service management.

Software needs for the instructional laboratories are addressed quarterly; a representative of the ICS Computing Support Team reaches out to ICS faculty who will teach the following quarter in order to ascertain which titles might need to be purchased/added and to learn those that can/should be removed.

In the School of Engineering, the process for maintaining and upgrading tools, equipment, computing resources and labs used by students and faculty in the CSE program is overseen by the Lab Manager in the EECS Department, who supervises the use of lab equipment and either schedules or provides regular maintenance. The Lab Manager monitors usage and provides projections of replacement or special repair needs for annual budget request submissions. Together with the EECS Department Manager and Chair, the Lab Manager prioritizes the list of maintenance and upgrade needs for the EECS department.

The EECS department typically builds equipment needs into the annual budget request that is submitted to the School. Routine maintenance is typically covered by the department's operating budget. Maintenance needs that exceed the department's budget and needs for upgrades are submitted to the Dean in the form of a special request. The School funds special requests to the extent possible. In better budget years, the School was able to set aside funds for recurring instructional equipment needs to supplement the annual and special allocations from the campus. Most replacements and costly repairs were covered by these funds. In recent years, this has not been possible and special needs require the School to prepare a special request to the campus for additional support.

E. Library Services

Describe and evaluate the capability of the library (or libraries) to serve the program including the adequacy of the library's technical collection relative to the needs of the program and the faculty, the adequacy of the process by which faculty may request the library to order books or subscriptions, the library's systems for locating and obtaining electronic information, and any other library services relevant to the needs of the program.

The University of California, Irvine Libraries (UCI) has a very active liaison librarian outreach program in place and the Applied Sciences & Engineering Librarian is the key contact for faculty and students in the Donald Bren School of Information and Computer Sciences and The Henry Samueli School of Engineering. The collection is large and responsive to all levels of users from undergraduates to graduate students and the research scientists and faculty. The campus subscribes to a wide scope of materials, journals and conference papers/proceedings, technical reports, and standards from most of the major professional societies (IEEE, ASCE, ASME, ACM, SIAM, AIAA, ACS, etc) and the global commercial publishers (Springer, Elsevier, Wiley Blackwell, Taylor & Francis, ASTM, etc) and many other publishers. The UCI Library actively acquires books and eBooks to meet academic and related needs from all the major and secondary publishers, including those already noted, plus IET, Safari O'Reilly, Momentum, among others. In addition, UCI

participates in the California Digital Library, a consortia of all 10 campuses of the University of California. The Applied Sciences & Engineering Librarian is responsible for all collection management activities to support the School of Information and Computer Sciences and the School of Engineering, promotes best practices for scholarly communication, maintains active Subject Guides for the program (see example, http://libguides.lib.uci.edu/engr_gen) and offers course related bibliographic and library instruction, is committed to successful learning outcomes, creates course pages and websites, holds training and meetings with student clubs, communicates regularly with faculty, staff, and students through messaging and email methods, is available for a variety of in-person reference and digital assistance, and holds study sessions in dormitories and residence halls. The Librarian's responsibilities include participating in a full scope of support services for all students enrolled in each degree program at the Bren School of Information and Computer Sciences and the Samueli School of Engineering, creating programs to augment curriculum in technical writing, public speaking & presentations, bibliographic management software, interdisciplinary content, and collaborates with other librarians in the Physical Sciences, Business, Medicine and related fields. In addition to promoting information literacy in its broadest definition, the UCI Library encourages the faculty to submit all information needs it has to support instruction and research needs. It makes every effort to respond positively and be an integral partner as the curriculum is revised and new publications are issued, however the current library materials budget was reduced from previous fiscal years and it is likely to be increasingly challenging in the future.

F. Overall Comments on Facilities

Describe how the program ensures the facilities, tools, and equipment used in the program are safe for their intended purposes (See the 2013-2014 APPM Section II.G.6.b.(1)).

100% of the CSE Program takes place in facilities on the UC Irvine (UCI) campus. All buildings, tools and equipment used in the program are property of the University and are built or purchased with safety and suitability in mind. University property is to be used solely for the purposes of CSE program and University instruction and research. Buildings are maintained by the UCI Facilities Management Department, under the direction of independent on-site Facilities Directors who are employed by the Schools that occupy the buildings.

The Department of Environmental Health & Safety (EH&S) assigns an EH&S coordinator for each school (Christian Ritter, Safety Coordinator for HSSoE and Alan Sahussanun, Fire Prevention Specialist for Bren:ICS) who are readily available to all parties in order to ensure spaces, tools and equipment are safe for intended purposes. EH&S does site audits of each building on regular intervals, specifically looking for safety-related issues or problems. These findings are compiled into a report that is given both to the school Facilities Director and the UCI Facilities Management who must then remedy any issues identified.

CRITERION 8. INSTITUTIONAL SUPPORT

A. Leadership

Describe the leadership of the program and discuss its adequacy to ensure the quality and continuity of the program and how the leadership is involved in decisions that affect the program.

The Chairs of the Department of Computer Science (CS) and the Department of Electrical Engineering and Computer Science (EECS) provide leadership of the Computer Science and Engineering (CSE) program by appointing faculty members from their respective departments to serve on the CSE Steering Committee. Further, these Chairs also serve as ex-officio members of the CSE Steering Committee. (See *Background Information*, section D. *Organizational Structure*.) This organization has been adequate to ensure the quality and continuity of the CSE program since its inception.

B. Program Budget and Financial Support

1. *Describe the process used to establish the program's budget and provide evidence of continuity of institutional support for the program. Include the sources of financial support including both permanent (recurring) and temporary (one-time) funds.*

Each fiscal year, the Department of Electrical Engineering and Computer Science (EECS) in The Henry Samueli School of Engineering (HSSoE) and the Department of Computer Science (CS) in the Donald Bren School of Information and Computer Sciences (Bren ICS) submit a budget request to the Deans' offices. The departmental budget requests are combined into final School-wide requests that are submitted to the University for action. Annually, the University allocates funds to each School. The Dean's office provides financial support to the departments from various funding sources: non-resident tuition revenue, block funding, teaching assistant support, UNEX and summer programs revenue, overhead, and an instructional equipment allotment.

Once a block of funding is received from the University, the Schools determine how the monies are disbursed to each department using a formula that is proportionate to each department's undergraduate student credit hours. The disbursements cover most categories of operating expenditures including, but not limited to: supplies, mail/postage, telephone, computer networking, copying and reproduction, publications, books, subscriptions, maintenance, repairs, student recruiting, furniture, entertainment, instructional computing, salaries, instructional support, and fellowships. Teaching Assistant (TA) needs for CSE are considered at the time the funding is received.

The CSE program receives administrative and financial support from the Department of Computer Science (CS) and the Department of Electrical Engineering and Computer Science (EECS). Additional sources of funding for courses within the CSE program can come from course fee revenue. The CSE Steering Committee provides primary leadership in overseeing the CSE program and its requisite funding. The CSE Steering

Committee meets, plans, deliberates, and identifies the need for support and financial resources for CSE labs and drafts requests for support as needed. CSE's institutional and financial resources are approximately divided in half between the CSE and the EECS departments. The required funding to support these initiatives is determined, and subsequently requested from the University Administration as part of the Schools' budget requests for anticipated expenditures. Additionally, one-time or initiative-specific funds are requested of the Administration as needed or as required to meet the needs of special program enhancements.

2. *Describe how teaching is supported by the institution in terms of graders, teaching assistants, teaching workshops, etc.*

The campus supports the Schools in their teaching mission with a permanent allocation of TA FTE, which are budgeted by the campus based on total undergraduate student credit hours for courses taught within each School. The TA FTE fund teaching assistants and graders. The HSSoE and Bren ICS annually augment these funds with allocations from temporary resources.

For 2012-13, the campus permanent allocation to support teaching was \$934,686 for Engineering (\$780,597 for 2011-12) and \$653,235 for ICS (\$640,433 for 2011-12). The campus also provides additional funds to support unexpected enrollment; these are temporary or one-time funds supplied in response to school requests. This amount was \$300,000 for Engineering (\$300,000 for 2011-12) and \$290,000 for ICS (\$125,000 for 2011-12). Engineering allocated these funds predominately to support teaching assistants and readers in each of the last two years (2012-13 and 2011-12). ICS also provides funds out of their core funding to support the teaching mission by providing additional funding for teaching assistants and readers. For 2012-13 this amount was \$400,000 from ICS (\$296,976 for 2011-12).

Within the School of Engineering, TA FTE are apportioned to departments using a weighted average of student credit hour FTE (80% weight) and enrollment (20%), based on data from the prior completed academic year. Although the campus only allocates based on student credit hours, the enrollment factor used in the school's distribution model incorporates relative changes in the size of each department's student population before being reflected in the student credit hours that are based mostly on the delivery of upper division courses.

While department allocations are made based on course contact hours, relative growth, departments are free to decide how TAs will be allocated to each course.

Within Bren ICS, allocations of TA FTE to individual courses are made using course enrollment and workload data associated with the School's undergraduate curriculum along with specific needs as described by individual departments. In this environment of limited resources, these allocations are modified each year to accommodate changing enrollment patterns associated with new degree programs. Department Chairs allocate

Teaching Assistant, Reader, and Tutor resources to courses with the largest enrollments, as well as those with discussion or laboratory sections.

Doctoral students in Bren ICS are required to take our school-based Teaching Assistant Training Seminar. This two-quarter course (2 units each) offers students theories, methods and resources for teaching computer science at the university level. In addition, all incoming doctoral students participate in a campus or school-based day-long TA training program offered during orientation week each Fall.

The University provides teaching workshops for Faculty, Lecturers and Teaching Assistants through the Teaching, Learning & Technology Center: <http://www.tlhc.uci.edu/workshops.html> Both at the campus and School level, faculty are encouraged and supported to take assessment workshops.

3. *To the extent not described above, describe how resources are provided to acquire, maintain, and upgrade the infrastructures, facilities and equipment used in the program.*

In both The Henry Samueli School of Engineering (HSSoE) and the Donald Bren School of Information and Computer Sciences (Bren ICS), academic departments are asked to identify instructional equipment, lab, and computing (and software) needs. These requests are evaluated and prioritized in the context of available resources, and as a means of compiling comprehensive requests for instructional lab or equipment upgrade funds from the campus. The campus solicits annual academic plans from each school in which instructional infrastructure and equipment needs can be outlined. Additionally, infrastructure funds can be requested through the annual campus call for proposals to fund small capital projects. Campus funding is also available in the form of "instructional use of computer" resources that are allocated to each School on an annual basis and are then distributed to the School instructional computer labs and academic departments, and to the computing support unit based on prioritized needs. In addition to this, the campus puts out a call for special instructional equipment needs every two to three years.

In 2012-13, the campus allocation to support instructional computing needs was \$160,000 for HSSoE and \$640,000 for Bren ICS. The most recent call for special instructional computing needs two years ago resulted in Engineering receiving a supplement of \$400,000 and ICS receiving \$68,200. Unfortunately, the annual funding cycle has been inconsistent since the recession and resulting state budget crisis. Although campus funding remains uncertain, the schools expect to submit a request to the campus for 2013-14 and each year beyond to address the most critical equipment upgrade needs.

4. *Assess the adequacy of the resources described in this section with respect to the students in the program being able to attain the student outcomes.*

The resources described in this section have been adequate to enable students in the CSE program to attain the student outcomes.

C. Staffing

Describe the adequacy of the staff (administrative, instructional, and technical) and institutional services provided to the program. Discuss methods used to retain and train staff.

The staff (administrative, instructional, and technical) and institutional services provided to the Computer Science and Engineering (CSE) program are adequate.

The institution provides operational support to the Schools, as well as an annual allocation to support Teaching Assistants. In turn, the Donald Bren School of Information and Computer Sciences (Bren ICS) and The Henry Samueli School of Engineering (HSSoE) provide permanent funding per department which supports permanent staff who administer the programs and facilitate the labs. Both schools support Building Facilities Managers and Lab Managers for school labs and facilities. Teaching Assistants provide additional instruction in the labs and discussions.

The institution offers compensation and benefits programs to attract and retain staff. Formal training is conducted via the UC Learning Center: <http://www.uclc.uci.edu/> Both schools and the institution encourage training and career development. Informal training and functional networking is also facilitated at the school and campus level.

D. Faculty Hiring and Retention

1. *Describe the process for hiring of new faculty.*

For Senate professorial hires, the Provost authorizes recruitment based on the availability of budgeted provisions (FTE), after considering the academic unit's description of need and the recommendations of the Academic Planning Council. Positions authorized for recruitment are advertised nationally in suitable academic and professional publications and online venues. Measures are undertaken to ensure consideration of a large and diverse pool of qualified candidates. The academic unit establishes a search committee to evaluate the candidates and inform the faculty. Once a sufficiently large and diverse candidate pool is identified, the search committee proposes a final group of candidates for serious consideration. The faculty, as a whole, rank the pool and select the candidate who will be proposed for an appointment based on the criteria established in the position description and advertisement, solicited assessment letters from respected academic colleagues, and interviews which occur during candidate visits to the academic unit where a research presentation is made. Proposed appointments are subject to review at multiple levels. The Dean is authorized to approve appointments at the levels of assistant professor steps I through III; higher levels are approved by the Provost or Chancellor.

2. *Describe strategies used to retain current qualified faculty.*

University budget reductions over past years have contributed to a lag between the system-wide faculty salary scales and average salaries of comparison universities. In an effort to address this lag in salaries and to reward faculty for their productivity and

valuable contributions to the campus, UC Irvine implemented higher off-scale salary rates for those in the professorial series who receive a merit or promotion salary increase. The term “off-scale” indicates that a salary is higher than the published system-wide salary at the designated rank and step. In addition, administrators are expected to make efforts to avoid disparities in faculty salaries and resources. Inequities are minimized through regular review of salaries, merits, teaching workloads, office and research space, committee service, nominations for awards, and opportunities for departmental leadership roles. Academic units are encouraged to initiate proactive salary adjustments to redress inequities, rather than wait for faculty members to become frustrated or to seek outside offers, thereby risking their loss to another institution.

E. Support of Faculty Professional Development

Describe the adequacy of support for faculty professional development and how activities such as sabbaticals, travel, workshops, seminars, etc., are planned and supported.

Both Schools provide set-up funds to new Senate faculty which usually support their travel and professional development activities until they are awarded extramural funds to cover such expenses. In addition, the Academic Senate Council on Research, Computing and Libraries (CORCL) receives an annual appropriation from the campus instruction and research budget. CORCL re-allocates more than half of its funds to the academic units' School Research Committees (SRCs) to award for travel for research or to present research findings at conferences, and as competitive research grants to faculty researchers for small research projects or pilot efforts leading to proposals for extramural funding.

Academic units in both Schools host seminars and colloquia that contribute to professional development. Both Schools provide funding to the CSE program that supports monthly faculty meetings and weekly strategy planning meetings, as well as occasional travel to meetings and workshops or promoting the program.

The institution offers sabbatical leave as a privilege accorded to Senate faculty to enable them to engage in intensive programs of research and/or study and thus enhance their subsequent service to the University by increasing their effectiveness as teachers and scholars. With each quarter of active service, faculty earn a credit which they may apply toward paid sabbatical leave. An individual on regular sabbatical leave is expected to devote full time to research, writing, or equivalent activity.

PROGRAM CRITERIA

Describe how the program satisfies any applicable program criteria. If already covered elsewhere in the self-study report, provide appropriate references.

We have a balanced curriculum which covers hardware design, software design, and the design of hardware/software systems. Students learn about digital hardware, from the architecture level, through gate level, down to transistor and device level. On the software side students also learn programming, languages, operating systems, software tools, compilers, data structures, and algorithms. Hardware and software are combined in CSE 145AB Embedded Computing Systems, and finally in CSE 181ABC Senior Design Project.

The CSE curriculum satisfies the specific program criteria as follows:

Knowledge of probability and statistics:

Stats 67 – Introduction to Probability and Statistics for Computer Science

Knowledge of mathematics through differential and integral calculus:

The following mathematics courses are required for all CSE students:

Math 2A – Single-Variable Calculus

Math 2B – Single-Variable Calculus

Math 2D – Multivariable Calculus

Knowledge of basic sciences:

The following basic science courses are required for all CSE students:

Physics 7C/7LC – Classical Physics Science Elective

Physics 7D/7LD – Classical Physics Science Elective

Knowledge of computer science:

The following computer science courses are required for all CSE students:

CSE 31 – Introduction to Digital Systems

CSE 31L – Introduction to Digital Logic Laboratory

CSE 41 – Introduction to Programming

CSE 42 – Programming with Software Libraries

CSE 43 – Intermediate Programming

CSE 45C – Programming in C/C++ as a Second Language

CSE 46 – Data Structures and Analysis

CSE 50 – Discrete Time Signals and Systems

CSE 132 – Organization of Digital Computers

CSE 132L – Organization of Digital Computers Laboratory

CSE 141 – Concepts in Programming Languages

CSE 142 – Compilers and Interpreters

CSE 145 A-B – Embedded Computing Systems (including lab)

CSE 161 – Design and Analysis of Algorithms

Informatics 43 – Introduction to Software Engineering

CompSci 143A or EECS 111 – Principles of Operating Systems or System Software

EECS 148 or CompSci 132 – Computer Networks

Knowledge of engineering sciences:

The following engineering topics courses are required for all CSE students:

- CSE 70A – Network analysis (including lab)
- CSE 90 – Systems Engineering and Technical Communications
- CSE 112 – Electronic Devices and Circuits
- CSE 135A-B – Digital Signal Processing (including lab)
- CSE 181A-B-CW – Senior design project

The required courses listed above include a minimum of 24 units of engineering design and a minimum of two additional basic science courses.

ABET
Self-Study Report
for
COMPUTER SCIENCE AND ENGINEERING

Appendix A – Course Syllabi

**Donald Bren School of Information and Computer Sciences
and
The Henry Samueli School of Engineering
University of California, Irvine
Irvine, CA 92697**

June 2013

CONFIDENTIAL

The information supplied in this Self-Study Report is for the confidential use of ABET and its authorized agents, and will not be disclosed without authorization of the institution concerned, except for summary data not identifiable to a specific institution.

CSE 31 INTRODUCTION TO DIGITAL SYSTEMS

(Required for CpE and EE.)

Catalog Data: **CSE 31 Introduction to Digital Systems (Credit Units: 4)** Digital representation of information. Specification, analysis, design and optimization of combinational and sequential logic, register-transfer components and register-transfer systems with datapaths and controllers. Introduction to high-level and algorithmic state-machines and custom processors. Prerequisite: EECS10, EECS12, MAE10, CSE41, ICS31. Same as EECS 31. (Design units: 2)

Required Textbook: Frank Vahid, *Digital System Design with SystemVerilog*. 2nd Edition, Wiley, 2010, ISBN-13 978-0470531082.

Recommended Textbook: None

References: None

Coordinator: Daniel D. Gajski

Relationship to Student Outcomes

This course relates to Student Outcomes: CAC a, CAC c, EAC a, EAC b, EAC c, EAC e.

Course Learning Outcomes. Students will:

1. Manipulate or design processing of information in binary form. (CAC a, CAC c, EAC a, EAC b, EAC c, EAC e)
2. Manipulate or design number representation in binary form. (CAC a, EAC b, EAC c, EAC e)
3. Manipulate or design basic combinational and sequential operators and circuits. (CAC a, CAC c, EAC b, EAC c, EAC e)
4. Manipulate or design combination of operators to form register transfer functions and structures, including controllers, datapath, and simple processors. (CAC a, CAC c, EAC b, EAC c, EAC e)

Prerequisites by Topic

Knowledge of computational methods and structured programs in electrical and computer engineering.

Lecture Topics:

- Number representation and binary codes. (week 1)
- Combinational logic design principles. (week 3)
- Combinational logic design practices. (week 4)
- Review and midterm. (week 5)
- Introduction to sequential logic, flip-flops, states. (week 6)
- Sequential logic design principles. State machines. (week 7)
- Sequential logic design practices. (week 8)
- Standard RTL(cycle-accurate) modules and networks. (week 9)
- FSM, Datapath and control. (week 10)

Class Schedule: Meets for 3 hours of lecture and 1 hour of discussion each week for 10 weeks.

Computer Usage: Basic computer skills

Laboratory Projects: See EECS 31L

Professional Component

Contributes toward the Electrical Engineering, Computer Engineering, and the Computer Science and Engineering, Topics Courses and Major Design experience.

Design Content Description

Approach: The first weeks of this course are devoted to numbers and gates. The remainder of the session provides instruction in the design of: Combinational circuits. Register-transfer circuits, ALUs, multiplexers, encoders, decoders, MUXes, DEMUXes. Sequential circuit, counters, registers, register files, finite state machines.

Lectures: 100%

Laboratory Portion:

Grading Criteria:

- Homework: 20%
- Midterm 1: 25%
- Midterm 2: 25%
- Final Exam: 30%
- Total: 100%

Estimated ABET Category Content:

Mathematics and Basic Science: 0.0 credit units

Computing: 4.0 credit units

Engineering Topics: 4.0 credit units

Engineering Science: 2.0 credit units

Engineering Design: 2.0 credit units

Prepared By: Robert Cassidy **Date:** November 6, 2012

Senate Approved: Pending Approval

Effective Pending Approval: 2013 Fall Qtr

CSE 31L INTRODUCTION TO DIGITAL LOGIC LABORATORY

(Required for CpE and EE.)

Catalog Data: **CSE 31L Introduction to Digital Logic Laboratory (Credit Units: 3)** Introduction to common digital integrated circuits: gates, memory circuits, MSI components. Operating characteristics, specifications, and applications. Design of simple combinational and sequential digital systems such as arithmetic processors game-playing machines. Construction and debugging techniques, using CAD tools and Breadboards. Prerequisite: EECS31/CSE31; EECS10, EECS12, CSE42/ICS32, CSE22 or ICS22 . Same as EECS 31L. (Design units: 3)

Required Textbook: Frank Vahid, *VHDL for Digital Design*. 1st Edition, Wiley, 2007, ISBN-13 978-0470052631.

Recommended Textbook: None

References: None

Coordinator: Daniel D. Gajski

Relationship to Student Outcomes

This course relates to Student Outcomes: CAC a, CAC c, CAC f, CAC i, EAC a, EAC b, EAC c, EAC e, EAC f, EAC g, EAC i, EAC k.

Course Learning Outcomes. Students will:

1. Design digital logic circuits using CAD tools. (CAC a, CAC c, CAC i, EAC a, EAC c, EAC e, EAC i, EAC k)
2. Validate their designs using simulation tools. (CAC a, CAC c, CAC i, EAC a, EAC b, EAC c, EAC i, EAC k)
3. Demonstrate a working knowledge of at least one commonly used hardware description language such as VHDL or Verilog. (CAC a, CAC i, EAC a, EAC i, EAC k)
4. Generate well-written reports describing designs and simulation code. (CAC f, EAC f, EAC g)

Prerequisites by Topic

- Advanced programming concepts including data types, pointers, recursion and modules.
- Specifications of digital component with Boolean algebra, FSM and FSM D models
- Analysis and optimization of register-transfer-level (RTL) components.
- Standard RTL components, such as adders, decoders, selectors, registers, register files, memories and their use.
- Introduction to RTL designs with datapath and controller

Lecture Topics:

- Xilinx ISE tutorial and introduction to simulation (week 1)
- Logic gates and introduction to VHDL (week 2)
- Behavioral and structural models of combinational components (week 3)
- FSM design with behavioral and structural modeling (week 4)
- FSM synthesis from behavior to structure (week 5)
- FSMD design and modeling (week 6)
- RTL designs with datapaths and controllers. (week 7)
- RTL methodology: from behavior to structure (week 8)
- IP design and modeling. (week 9)
- Final Project: DCT (week 10)

Class Schedule: Meets for 2 hours of lecture and 3 hours of laboratory each week for 10 weeks.

Computer Usage: Xilinx Foundation series and ModelSim simulating

Laboratory Projects:

- BeltWarn design (with logic gates),
- Finite-state machine design (with state-register and combinatorial logic),
- Vector adder (with datapath and controller),
- IP design for DCT (with a signal-processing datapath and controller)

Professional Component

Contributes toward the Computer Engineering, Computer Science and Engineering, and the Electrical Engineering Topics Courses and Major Design experience.

Design Content Description

Approach: Following a brief review of combinational and sequential logic circuits, the class is devoted to register-transfer-level design using VHDL programming, and simulation.

Lectures: 40%

Laboratory Portion: 60%

Grading Criteria:

- Labs: 70%
- Final exam: 30%
- Total: 100%

Estimated ABET Category Content:

Mathematics and Basic Science: 0.0 credit units

Computing: 3.0 credit units

Engineering Topics: 3.0 credit units

Engineering Science: 0.0 credit units

Engineering Design: 3.0 credit units

Prepared By: Robert Cassidy **Date:** July 11, 2012

Senate Approved: February 14, 2012

Approved Effective: 2012 Fall Qtr

CSE 41 INTRODUCTION TO PROGRAMMING

(Required for CSE.)

Catalog Data: **CSE 41 Introduction to Programming (Credit Units: 4)** Introduction to fundamental concepts and techniques for writing software in a high-level programming language. Covers the syntax and semantics of data types, expressions, exceptions, control structures, input/output, methods, classes, and pragmatics of programming. Same as I&C SCI 31. Only one course from CSE 41, I&C SCI 31, I&C SCI 21, CSE 21, I&C SCI H21, EECS 10, EECS 12, ENGR 10, ENGRMAE 10 may be taken for credit. (Design units: 0)

Required Textbook: Ljubomir Perkovic, *Introduction to Computing Using Python: An Application Development Focus*. 1st Edition, Wiley, 2011, ISBN-13 978-0470618462.

Recommended Textbook: None

References: None

Coordinator: David G. Kay and Richard Eric Pattis

Relationship to Student Outcomes

This course relates to Student Outcomes: CAC a, CAC b, CAC c, CAC i, CAC k, EAC k.

Course Learning Outcomes. Students will:

1. Write, test, and debug code within a development environment. (CAC a, CAC c, CAC i, EAC k)
2. Combine data types and organization schemes to model real-world information. (CAC a, CAC b, CAC c, CAC i, CAC k)
3. Implement algorithms within the constraints of a programming language's syntax and semantics. (CAC a, CAC c, CAC i)
4. Employ a programming language's abstraction mechanisms to reduce complexity and increase reliability of software. (CAC a, CAC c, CAC i, CAC k)
5. Follow a systematic methodology to produce solutions expeditiously and reduce the introduction of bugs. (CAC a, CAC c, CAC i, CAC k)
6. Predict the results that source code will produce when executed. (CAC a, CAC c)
7. Describe the practical limitations of software systems. (CAC a, CAC c)
8. Describe how programming languages fit in the broader context of modern computing systems. (CAC a, CAC c)

Prerequisites by Topic

None

Lecture Topics: Introduction to Programming

Class Schedule: Meets for 3 hours of lecture, 1 hour of discussion and 6 hours of laboratory each week for 10 weeks.

Computer Usage:**Laboratory Projects:****Professional Component****Design Content Description***Approach:**Lectures:**Laboratory Portion:***Grading Criteria:**

- Lab assignments and participation: 40%
- Quizzes and exams: 60%
- Total: 100%

Estimated ABET Category Content:

Mathematics and Basic Science: 0.0 credit units

Computing: 4.0 credit units

Engineering Topics: 4.0 credit units

Engineering Science: 4.0 credit units

Engineering Design: 0.0 credit units

Prepared By: Robert Cassidy **Date:** November 28, 2012**Senate Approved:** December 16, 2011**Approved Effective:** 2012 Fall Qtr

CSE 42 PROGRAMMING WITH SOFTWARE LIBRARIES

(Required for CSE.)

Catalog Data: **CSE 42 Programming with Software Libraries (Credit Units: 4)** Construction of programs for problems and computing environments more varied than in ICS 31. Using library modules for applications such as graphics, sound, GUI, database, web, and network programming. Language features beyond those in ICS 31 are introduced as needed. Prerequisite: ICS31/CSE41. Same as I&C SCI 32. Only one course from CSE 42, I&C SCI 32, I&C SCI 22, CSE 22, I&C SCI H22, IN4MATX 42 may be taken for credit. (Design units: 0)

Required Textbook: Ljubomir Perkovic, *Introduction to Computing Using Python: An Application Development Focus*. 1st Edition, Wiley, 2011, ISBN-13 978-0470618462.

Recommended Textbook: None

References: None

Coordinator: Alexander W. Thornton

Relationship to Student Outcomes

This course relates to Student Outcomes: CAC a, CAC b, CAC c, CAC i, CAC k.

Course Learning Outcomes. Students will:

1. Describe how to employ the components of an API to model aspects of the real world. (CAC a, CAC b, CAC c, CAC i, CAC k)
2. Identify which parts of an existing software library (API) can contribute to a problem's solution. (CAC b)
3. Assemble parts provided by an API into an effective program. (CAC a, CAC c, CAC i, CAC k)
4. Demonstrate proficiency in implementing programs that draw on APIs of increasing size and complexity for a variety of problem domains. (CAC a, CAC c, CAC i, CAC k)
5. Build simple components using classes. (CAC a, CAC b, CAC c, CAC i, CAC k)

Prerequisites by Topic

- Ability to write simple programs in Python.

Lecture Topics: Programming with Software Libraries

Class Schedule: Meets for 3 hours of lecture, 1 hour of discussion and 6 hours of laboratory each week for 10 weeks.

Computer Usage:

Laboratory Projects:

Professional Component

Design Content Description***Approach:******Lectures:******Laboratory Portion:*****Grading Criteria:**

- Lab assignments and participation: 40%
- Quizzes and exams: 60%
- Total: 100%

Estimated ABET Category Content:

Mathematics and Basic Science: 0.0 credit units

Computing: 4.0 credit units

Engineering Topics: 4.0 credit units

Engineering Science: 4.0 credit units

Engineering Design: 0.0 credit units

Prepared By: Robert Cassidy **Date:** November 28, 2012**Senate Approved:** January 10, 2012**Approved Effective:** 2012 Fall Qtr

CSE 43 INTERMEDIATE PROGRAMMING

(Required for CSE.)

Catalog Data: **CSE 43 Intermediate Programming (Credit Units: 4)** Intermediate-level language features and programming concepts for larger, more complex, higher quality software. Functional programming, name spaces, modules, class protocols, inheritance, iterators, generators, operator overloading, reflection. Analysis of time and space efficiency. Prerequisite: ICS32/CSE42 with a grade of C or better. Same as I&C SCI 33. Only one course from CSE 43, I&C SCI 33, I&C SCI 22, CSE 22, I&C SCI H22, IN4MATX 42 may be taken for credit. (Design units: 0)

Required Textbook: Mark Lutz, *Learning Python: Powerful Object-Oriented Programming*. 4th Edition, O'Reilly Media, 2009, ISBN-13 978-0596158064.

Recommended Textbook: None

References: None

Coordinator: Richard Eric Pattis

Relationship to Student Outcomes

This course relates to Student Outcomes: CAC a, CAC b, CAC c, CAC i, CAC k.

Course Learning Outcomes. Students will:

1. Build reusable components. (CAC a, CAC b, CAC c, CAC i, CAC k)
2. Use tools for integrating features into the language syntax. (CAC a, CAC b, CAC c, CAC i, CAC k)
3. Write programs in the functional style and describe the advantage of that approach. (CAC a, CAC b, CAC c, CAC i, CAC k)
4. Analyze and describe (using O-notation) the execution time and space consumption of simple programs. (CAC a, CAC b)
5. Make informed implementation decisions based on performance tradeoffs (CAC a, CAC b)
6. Build components using inheritance and interfaces. (CAC a, CAC b, CAC c, CAC i, CAC k)
7. Compare programming languages along dimensions such as static or dynamic typing, automatic or manual garbage collection, and implicit or explicit concurrency. (CAC a, CAC b)

Prerequisites by Topic

- ability to write programs in Python using libraries.

Lecture Topics: Intermediate Programming

Class Schedule: Meets for 3 hours of lecture, 1 hour of discussion and 6 hours of laboratory each week for 10 weeks.

Computer Usage:

Laboratory Projects:

Professional Component**Design Content Description*****Approach:******Lectures:******Laboratory Portion:*****Grading Criteria:**

- Lab assignments and participation: 40%
- Quizzes and exams: 60%
- Total: 100%

Estimated ABET Category Content:

Mathematics and Basic Science: 0.0 credit units

Computing: 4.0 credit units

Engineering Topics: 4.0 credit units

Engineering Science: 4.0 credit units

Engineering Design: 0.0 credit units

Prepared By: Robert Cassidy **Date:** November 28, 2012**Senate Approved:** January 10, 2012**Approved Effective:** 2012 Fall Qtr

CSE 45C PROGRAMMING IN C/C++ AS A SECOND LANGUAGE

(Not required for any major.)

Catalog Data: **CSE 45C Programming in C/C++ as a Second Language (Credit Units: 4)** An introduction to the lexical, syntactic, semantic, and pragmatic characteristics of the C/C++ languages for experienced programmers. Emphasis on object-oriented programming, using standard libraries, and programming with manual garbage collection. Formerly ICS 65. Same as ICS 45C. Prerequisite: One of ICS 23/CSE 23, Informatics 45 or ICS 33/CSE 43, with a grade of C or better, or the consent of the instructor. Same as I&C SCI 45C. (Design units: 0)

Required Textbook: Walter Savitch, *Absolute C++ (5th Edition)*. 5th Edition, Addison-Wesley, 2012, ISBN-13 978-0132830713.

Recommended Textbook: None

References: None

Coordinator: Alexander W. Thornton

Relationship to Student Outcomes

This course relates to Student Outcomes: CAC a, CAC b, CAC c, CAC i, CAC k, EAC k.

Course Learning Outcomes. Students will:

1. Write programs in C++ at a level of sophistication similar to that expected in ICS 33. (CAC a, CAC b, CAC c, CAC i, CAC k, EAC k)
2. Describe the advantages and disadvantages of static typing and automatic garbage collection. (CAC a, CAC b)
3. Navigate and use standard libraries effectively. (CAC a, CAC b, CAC c, CAC i, CAC k)

Prerequisites by Topic

- One year of programming in another language.

Lecture Topics: Emphasis on object-oriented programming, using standard libraries, and programming with manual garbage collection.

Class Schedule: Meets for 3 hours of lecture and 1 hour of discussion each week for 10 weeks.

Computer Usage:

Laboratory Projects:

Professional Component

Design Content Description

Approach:

Lectures:

Laboratory Portion:

- Grading Criteria:**
- Lab assignments and participation: 40%
 - Quizzes and exams: 60%
 - Total: 100%

Estimated ABET Category Content:

Mathematics and Basic Science: 0.0 credit units

Computing: 4.0 credit units

Engineering Topics: 4.0 credit units

Engineering Science: 4.0 credit units

Engineering Design: 0.0 credit units

Prepared By: Robert Cassidy **Date:** November 29, 2012

Senate Approved: June 12, 2012

Approved Effective: 2012 Fall Qtr

CSE 46 DATA STRUCTURE IMPLEMENTATION AND ANALYSIS

(Required for CSE.)

Catalog Data: **CSE 46 Data Structure Implementation and Analysis (Credit Units: 4)** Focuses on implementation and mathematical analysis of fundamental data structures and algorithms. Covers storage allocation and memory management techniques. Formerly CSE 23. Prerequisite: CSE 45C/ICS 45C or ICS 65 with a grade C or better. Same as I&C SCI 46. Only one course from CSE 46, I&C SCI 46, I&C SCI H23 may be taken for credit. (Design units: 0)

Required Textbook: Michael T. Goodrich, et al., *Data Structures and Algorithms in C++*. 2nd Edition, Wiley, 2011, ISBN-13 978-0470383278.

Recommended Textbook: None

References: None

Coordinator: Richard Eric Pattis

Relationship to Student Outcomes

This course relates to Student Outcomes: CAC a, CAC b, CAC c, CAC i, CAC k.

Course Learning Outcomes. Students will:

1. Use abstract data types to write application programs. (CAC a, CAC b, CAC c, CAC i, CAC k)
2. Implement abstract data types using various data structures. (CAC a, CAC c, CAC i, CAC k)
3. Analyze the time/space behavior of data structures implementing abstract data types. (CAC a, CAC b)

Prerequisites by Topic

C++ Programming

Lecture Topics:

- Introduction to the course
- Generalized list
- Some Applications of Trees
- Balancing Binary Search Trees; AVL Trees
- Graphs
- Searching
- Sorting
- Searching
- Sorting on External Media
- Searching on External Media
- Memory Management

Class Schedule: Meets for 3 hours of lecture and 1 hour of discussion each week for 10 weeks.

Computer Usage: None

Laboratory Projects: None

Professional Component

None

Design Content Description

Approach:

Lectures:

Laboratory Portion:

Grading Criteria:

- Lab assignments and participation: 40%
- Quizzes and exams: 60%
- Total: 100%

Estimated ABET Category Content:

Mathematics and Basic Science: 0.0 credit units

Computing: 4.0 credit units

Engineering Topics: 4.0 credit units

Engineering Science: 4.0 credit units

Engineering Design: 0.0 credit units

Prepared By:

Jennifer Vargas **Date:** December 11, 2012

Senate Approved:

Pending Approval

Effective Pending

2013 Fall Qtr

Approval:

CSE 50 DISCRETE-TIME SIGNALS AND SYSTEMS

(Required for CpE and EE.)

Catalog Data: **CSE 50 Discrete-Time Signals and Systems (Credit Units: 4)** Analysis of discrete-time linear-time-invariant (DTLTI) systems in the time domain and using z-transforms. Introduction to techniques based on Discrete-Time, Discrete, and Fast Fourier Transforms. Examples of their application to digital processing and digital communications. Prerequisite: EECS70A/CSE70A. Same as EECS 50. (Design units: 0)

Required Textbook: Charles L. Phillips, et al., *Signals, Systems, and Transforms (4th Edition)*. 4th Edition, Prentice Hall, 2007, ISBN-13 978-0131989238.

Recommended Textbook: None

References:

- Oppenheim, Alan V., Schafer, Ronald W., and Buck, John R. *Discrete Time Signal Processing*, 2nd Edition, Prentice Hall, 1999.
- Sheno, B.A. *Introduction to Digital Signal Processing and Filter Design*, 1st Edition, Wiley-Interscience, 2005.

Coordinator: Glenn E. Healey

Relationship to Student Outcomes

This course relates to Student Outcomes: CAC a, EAC a.

Course Learning Outcomes. Students will:

1. Analyze discrete-time linear time-invariant (DTLTI) systems using time-domain techniques. (CAC a, EAC a)
2. Analyze DTLTI systems using z-transforms. (CAC a, EAC a)
3. Analyze DT signals and systems using discrete-time Fourier transforms (DTFT), discrete Fourier transforms (DFT), and fast Fourier transform (FFT). (CAC a, EAC a)
4. Describe simple applications of the above techniques to digital signal processing and digital communications. (CAC a, EAC a)

Prerequisites by Topic

Knowledge of calculus through integration of trigonometric functions, as well as knowledge of differential equations.

Lecture Topics:

- Discrete-Time Linear Time-Invariant Systems (Time Domain) - Chapters 9 & 10 (Week 1, 2, and 3)
- Discrete-Time Linear Time-Invariant Systems (Z-Domain) – Chapter 11 (Week 3, 4 and 5)
- Discrete-time and Discrete Fourier Transforms and Applications – Chapter 12 (Week 6, 7, 8, and 9)

Class Schedule: Meets for 3 hours of lecture and 1 hour of discussion each week for 10 weeks.

Computer Usage: Computer usage is not required. Most of the problems have analytical solutions however for those that have numerical solutions, calculators and computers may be used.

Laboratory Projects: None

Professional Component

Contributes toward the Computer Engineering, Computer Science and Engineering, and Electrical Engineering Topics Courses.

Design Content Description

Approach:

Lectures:

Laboratory Portion:

Grading Criteria:

- Weekly Homework Assignments: 15%
 - Midterm Exam 1: 20%
 - Midterm Exams 2: 25%
 - Final exam: 40%
 - Total: 100%
- Letter grades are based on a curve about the median score, which is assigned a B9minus grade.

Estimated ABET Category Content:

Mathematics and Basic Science: 0.0 credit units

Computing: 4.0 credit units

Engineering Topics: 4.0 credit units

Engineering Science: 4.0 credit units

Engineering Design: 0.0 credit units

Prepared By: Robert Cassidy **Date:** November 28, 2012

Senate Approved: January 10, 2012

Approved Effective: 2012 Fall Qtr

CSE 70A NETWORK ANALYSIS I

(Required for AE, CSE, CpE, EE, ME and MSE. Selected Elective for CE.)

- Catalog Data:** **CSE 70A Network Analysis I (Credit Units: 4)** Modeling and analysis of electrical networks. Basic network theorems. Sinusoidal steady state and transient analysis of RLC networks and the impedance concept. Corequisite: Mathematics 3D. Prerequisite: Physics 7D; EECS10, MAE10, EECS12, CSE41/ICS 31. Same as EECS 70A. Only one course from CSE 70A, EECS 70A, ENGRMAE 60 may be taken for credit. (Design units: 1)
- Required Textbook:** J. David Irwin, *Basic Engineering Circuit Analysis*. 10th Edition, Wiley, 2010, ISBN-13 978-0470633229.
- Recommended Textbook:** None
- References:**
- Johnson, D. E., Johnson J. R., Hilburn, J. L. and Scott, P.D., *Electric Circuit Analysis*, 3rd edition, Wiley, 1999.
 - Nilsson, J.W., Riedel, S.A. *Electric Circuits*, 8th edition, Prentice Hall, 2007.
- Coordinator:** Peter J. Burke
- Relationship to Student Outcomes**
This course relates to Student Outcomes: CAC a, EAC a.
- Course Learning Outcomes. Students will:**
1. Use mathematical tools for analyzing linear RLC circuits. (CAC a, EAC a)
 2. Describe the basic network theorems. (CAC a, EAC a)
 3. Describe the concepts of complete response and transient response of linear RLC circuits. (CAC a, EAC a)
- Prerequisites by Topic**
- Understanding differential equations
 - Understanding of physics of electric networks.
 - Understanding of computational methods.
- Lecture Topics:** This course is aimed at the basic network theorems (Thevenin, Norton, nodal analysis, mesh analysis, transient response, complete response, and superposition) to analyze first and second order linear RLC circuits.
- Class Schedule:** Meets for 3 hours of lecture and 1 hour of discussion each week for 10 weeks.
- Computer Usage:** The student is required to use PSPICE circuit simulation software and a scientific calculator for all the calculations in this class.
- Laboratory Projects:** None.

Professional Component

Contributes toward the Computer Engineering, Biomedical Engineering, Computer Science and Engineering, Mechanical Engineering, and the Materials Science Engineering, Topics Courses and the Electrical Engineering Topics Courses and Major Design experience.

Design Content Description

Approach: Three weeks of this course are devoted to elementary design of linear circuits. In particular, time is devoted to (a) the design of voltage and current dividers, (b) the design of basic operational amplifier circuits, including voltage followers, summers, and inverting summers, and (c) the design of basic RLC networks. Homework: 50%.

Lectures: 100%

Laboratory Portion: 0%

Grading Criteria:

- 8 Problem sets: 10%
- 2 Midterm exams: 60%
- Comprehensive Final Exams: 30%
- Total: 100%

Estimated ABET Category Content:

Mathematics and Basic Science: 0.0 credit units

Computing: 0.0 credit units

Engineering Topics: 4.0 credit units

Engineering Science: 3.0 credit units

Engineering Design: 1.0 credit units

Prepared By: Robert Cassidy **Date:** November 6, 2012

Senate Approved: Pending Approval

Effective Pending 2013 Fall Qtr

Approval:

CSE 90 SYSTEMS ENGINEERING AND TECHNICAL COMMUNICATIONS

(Required for CSE.)

Catalog Data: **CSE 90 Systems Engineering and Technical Communications (Credit Units: 2)** Introduces systems engineering concepts, including specification and requirements, hardware and software design, integration, testing, and documentation. Emphasizes organization and writing of reports and effective presentations. (Design units: 0)

Required Textbook: Sally Barr Ebest, *Writing From A to Z*. 5th Edition, McGraw-Hill, 2012, ISBN-13 978-0072961492. Andrew P. Sage, *Introduction to Systems Engineering (Wiley Series in Systems Engineering and Management)*. 1st Edition, Wiley-Interscience, 2000, ISBN-13 978-0471027669.

Recommended Textbook: None

References: NONE.

Coordinator: Tony D. Givargis and Amelia C. Regan

Relationship to Student Outcomes

This course relates to Student Outcomes: CAC e, CAC f, CAC g, CAC h, EAC f, EAC g, EAC h, EAC i, EAC j.

Course Learning Outcomes. Students will:

1. Understand the definitions, scope, and distinguishing characteristics of systems engineering.
2. Recognize the different domains prevalent in a typical systems engineering environment.
3. Describe the basic components and/or methodologies used for the definition, design, development, deployment, decommissioning, and disposal of a large-scale system. (CAC g, EAC h)
4. Understand how to research, evaluate, and obtain applicable software/hardware standards. (CAC h, EAC i)
5. Recognize legal issues and responsibilities in engineering contracting (CAC e, EAC f)
6. Understand the value of computing to local, regional, and global institutions (CAC g, EAC h)
7. Identify typical documents used in a systems engineering environment for project milestone deliverables.
8. Understand current issues on computing described in the popular media (EAC j)
9. Recognize ethical engineering practices represented in written and verbal communications in the workplace. (CAC e, EAC f)
10. Demonstrate the effective use of principled reasoning to evaluate/solve ethical, unethical, and non-ethical situations in an engineering environment. (CAC e, EAC f)
11. Demonstrate the ability to make appropriate decisions regarding the form, format, and style of a technical document based on the target audience. (CAC f, EAC g)
12. Recognize effective methodologies for reviewing, editing, and revising a technical document. (CAC f, EAC g)

13. Deliver a dynamic oral presentation of systems engineering technical data to a peer audience.
(CAC f, EAC g)

Prerequisites by Topic

College level English

Lecture Topics:

- Overview of systems engineering principles and concepts
- Overview of the product development process and product life cycle
- Overview of systems engineering project management basics
- Overview of tools and models used in the system design process
- Basic analysis of alternatives to a system design process
- Methodological frameworks and systems engineering processes
- Understanding Legal and ethical responsibilities in engineering
- Producing effective technical documentation
- Delivering oral presentations of technical data to peer audiences

Class Schedule: Meets for 2 hours of lecture and 3 hours of laboratory each week for 10 weeks.

Computer Usage: Microsoft Office; web research tools

Laboratory Projects: Research engineering codes of ethics, research design specifications, write system requirements specifications, prepare group design project.

Professional Component

Contributes towards the Computer Science and Engineering major requirements for Engineering Topic courses and Computer Topics courses.

Design Content Description

Approach:

- Approach:
- Lectures:
- Laboratory Portion:

Lectures: 0%

Laboratory Portion: 0%

Grading Criteria:

- Technical Report: 10%
- Midterm Exam: 20%
- Collaborative Research Paper: 30%
- Oral Presentation of Research Paper: 20%
- Final Exam: 20%
- Total: 100%

Estimated ABET Category Content:

Mathematics and Basic Science: 0.0 credit units

Computing: 0.0 credit units

Engineering Topics: 2.0 credit units

Engineering Science: 2.0 credit units

Engineering Design: 0.0 credit units

Prepared By: Robert Cassidy **Date:** July 11, 2012

Senate Approved: February 25, 2003

Approved Effective: 2003 Fall Qtr

CSE 112 ELECTRONIC DEVICES AND CIRCUITS

(Required for CSE.)

Catalog Data: **CSE 112 Electronic Devices and Circuits (Credit Units: 4)** A first course in the design of Very Large Scale Integrated (VLSI) systems. Introduction to CMOS technology: MOS transistors and CMOS circuits. Analysis and synthesis of CMOS gates. Layout design techniques for building blocks and systems. Introduction to CAD tools. Prerequisite: Physics 7D; CSE70A/EECS70A. Only one course from CSE 112, EECS 119, EECS 170D may be taken for credit. (Design units: 4)

Required Textbook: Jan M. Rabaey, et al., *Digital Integrated Circuits (2nd Edition)*. 2nd Edition, Prentice Hall, 2003, ISBN-13 978-0130909961.

Recommended Textbook: None

References: Weste and Eshraghian, *Principles of CMOS VLSI*, 2nd Edition, Addison-Wesley, 1994.

Coordinator: Fadi Kurdahi

Relationship to Student Outcomes

This course relates to Student Outcomes: CAC a, CAC c, CAC j, EAC a, EAC b, EAC e, EAC k.

Course Learning Outcomes. Students will:

1. Understand MOS transistors. (EAC a)
2. Be able to design basic CMOS gates. (CAC a, EAC a)
3. Design circuits that perform combinational and sequential functions and analyze their performance when implemented in ICs. (CAC a, CAC c, CAC j, EAC a, EAC b, EAC e, EAC k)
4. Design VLSI layouts, analyze, and optimize or tradeoff their quality metrics given a set of constraints. (CAC a, CAC c, CAC j, EAC a, EAC b, EAC e, EAC k)

Prerequisites by Topic

- Calculus: First order differential equations;
- College physics: Mechanics, waves, electromagnetics, and quantum physics;
- College chemistry: General bonding theory and co-valent bonding;
- Circuit theory: RLC circuits, transfer function, impulse response, node and loop equations.
- Building blocks and organization of digital computers
- Arithmetic, control and memory units
- Circuit analysis

Lecture Topics:

- Introduction to semiconductor electronics
- MOS transistors
- Inverter, Static CMOS and Dynamic CMOS.
- Combinational Logic Design. Design of Sequential Circuits.
- Design of Arithmetic Building Block
- Timing Issues.

Class Schedule: Meets for 3 hours of lecture and 1 hour of discussion each week for 10 weeks.

Computer Usage: MAGIC, IRSIM, SPICE (or equivalent)

Laboratory Projects: Spice simulation, layout for inverter, layout for basic gates, layout for adder.

Professional Component

Contributes towards the Computer Science and Engineering major requirements for Engineering Topics courses.

Design Content Description

Approach: Study of devices; NMOS and PMOS; design of: Inverter, Combinational, ALU.

Lectures: 50%

Laboratory Portion: 50%

Grading Criteria:

- Homework: 10%
- Projects: 35%
- Midterm Exam: 25%
- Final Exam: 30%
- Total: 100%

Estimated ABET Category Content:

Mathematics and Basic Science: 0.0 credit units

Computing: 0.0 credit units

Engineering Topics: 4.0 credit units

Engineering Science: 0.0 credit units

Engineering Design: 4.0 credit units

Prepared By: Robert Cassidy **Date:** July 11, 2012

Senate Approved: January 10, 2012

Approved Effective: 2012 Fall Qtr

CSE 132 ORGANIZATION OF DIGITAL COMPUTERS

(Required for CpE. Selected Elective for EE.)

Catalog Data: **CSE 132 Organization of Digital Computers (Credit Units: 4)** Building blocks and organization of digital computers, the arithmetic, control, and memory units, and input/out devices and interfaces. Microprogramming and microprocessors. Prerequisite: CSE31L/EECS31L. Same as EECS 112. Only one course from CSE 132, EECS 112, COMPSCI 152 may be taken for credit. (Design units: 4)

Required Textbook: David A. Patterson, *Computer Organization and Design, Fourth Edition: The Hardware/Software Interface (The Morgan Kaufmann Series in Computer Architecture and Design)*. 4th Edition, Morgan Kaufmann, 2008, ISBN-13 978-0123744937.

Recommended Textbook: None

References: None

Coordinator: Nader Bagherzadeh

Relationship to Student Outcomes

This course relates to Student Outcomes: CAC a, CAC b, CAC c, CAC i, CAC j, EAC a, EAC b, EAC c, EAC e, EAC i, EAC j, EAC k.

Course Learning Outcomes. Students will:

1. Have a working knowledge of computer systems, their basic organization and components. (CAC a, CAC i, EAC a, EAC i, EAC j)
2. Have a working knowledge of the inner-working of computers, their evolution and trade-offs affecting their performance. (CAC a, CAC c, CAC j, EAC a, EAC c, EAC j)
3. Develop experience with the design process in the context of computer hardware (CAC a, CAC c, CAC i, CAC j, EAC a, EAC c, EAC e, EAC i, EAC j, EAC k)
4. Possess the capability to analyze the performance of computer systems and their limitations. (CAC a, CAC b, CAC c, CAC i, EAC a, EAC b, EAC c, EAC e, EAC i, EAC k)

Prerequisites by Topic

- Introduction to common digital integrated circuits: gates, memory circuits, MSI components.
- Operating characteristics, specifications, and applications.
- Design of simple combinational and sequential digital systems.
- Construction and debugging techniques, using CAD tools and breadboards.

Lecture Topics:

- Introduction to computer systems and performance evaluation. (week 1 & 2)
- Machine language and computer arithmetics, Chapters 3 and 4. (week 3 & 4)
- Midterm 1: Processor design; control and data path, Chapter 5. (week 5 & 6)
- Pipelining, Chapter 6. (week 7 & 8)
- Memory design, Chapter 7. (week 9 & 10)

Class Schedule: Meets for 3 hours of lecture and 1 hour of discussion each week for 10 weeks.

Computer Usage: Personal computer

Laboratory Projects: None.

Professional Component

Contributes toward the Computer Engineering and Computer Science and Engineering Topics Courses and Major Design experiences.

Design Content Description

Approach: The design content of this course is based on the time spent designing CPU architecture; pipeline design and hazard management; RTL design of the micro architecture for a basic microprocessor including the instruction set architecture; and memory management subsystem design and analysis.

Lectures: 0%

Laboratory Portion: 100%

Grading Criteria:

- Midterm Exam: 30%
- Homework & Pop Quizzes: 30%
- Final Exam: 40%
- Total: 100%

Estimated ABET Category Content:

Mathematics and Basic Science: 0.0 credit units

Computing: 4.0 credit units

Engineering Topics: 4.0 credit units

Engineering Science: 0.0 credit units

Engineering Design: 4.0 credit units

Prepared By: Robert Cassidy **Date:** July 11, 2012

Senate Approved: April 15, 2005

Approved Effective: 2005 Fall Qtr

CSE 132L ORGANIZATION OF DIGITAL COMPUTERS LABORATORY

(Required for CpE.)

- Catalog Data:** **CSE 132L Organization of Digital Computers Laboratory (Credit Units: 3)** Specification and implementation of a processor-based system using a hardware description language such as VHDL. Hands-on experience with design tools including simulation, synthesis, and evaluation using testbenches. Prerequisite: CSE132/EECS112. Same as EECS 112L. (Design units: 3)
- Required Textbook:** David A. Patterson, *Computer Organization and Design, Revised Fourth Edition, Fourth Edition: The Hardware/Software Interface (The Morgan Kaufmann Series in Computer Architecture and Design)*. 4th Edition, Morgan Kaufmann, 2011, ISBN-13 978-0123747501.
- Recommended Textbook:** None
- References:** Course website: <http://e3.uci.edu>
- Coordinator:** Pai Chou

Relationship to Student Outcomes

This course relates to Student Outcomes: CAC a, CAC i, EAC a, EAC e, EAC h, EAC i, EAC j, EAC k.

Course Learning Outcomes. Students will:

1. Write structured, multi-module hardware models in VHDL. (CAC a, CAC i, EAC a, EAC e, EAC h, EAC i, EAC j)
2. Compile VHDL files using a CAD tool such as Cadence NCVHDL that involve external libraries. (CAC a, CAC i, EAC a, EAC e, EAC i, EAC j, EAC k)
3. Test and debug programs using a simulator such as Cadence. (CAC a, CAC i, EAC a, EAC e, EAC i, EAC j, EAC k)
4. Analyze waveforms for correctness and efficiency. (CAC a, CAC i, EAC a, EAC e, EAC i, EAC j, EAC k)

Prerequisites by Topic

- Fundamentals of Programming (EECS12, 20, 40).
- Computer architecture, with assembly programming (EECS112).

Lecture Topics:

- VHDL introduction and basic behavioral modeling. (2 weeks)
- Structural VHDL and memory modeling. (2 weeks)
- MIPS ISA simulation and instruction decoding. (2 weeks)
- Latched-based design and multi-cycle CPU. (2 weeks)
- Pipelined design and integration. (2 weeks)

Class Schedule: Meets for 1 hour of lecture, 1 hour of discussion and 3 hours of laboratory each week for 10 weeks.

Computer Usage: The Sun Sparc server (east.ece.uci.edu) connected to 30 SunRay clients. Also possible to use any X-terminal to remote-login to the server. NCVHDL from Cadence is used as the default software. A fall-back option is ModelSim from Mentor Graphics (runs on Windows or Linux). Another fall-back option is from Synopsys. SPIM from University of Wisconsin is also used (multi-platform).

Laboratory Projects:

- Assembly programming exercises to familiarize with MIPS ISA, correlate with high-level language constructs.
- Refining VHDL model for MIPS processor to learn about datapath and control, and integrate the components.
- Understand timing diagrams and express the intended behavior in VHDL.
- Latch-based design.

Professional Component

Contributes toward the Computer Engineering and Computer Science and Engineering Computing and Engineering Topics Courses and Major Design experience.

Design Content Description

Approach: Six weeks of this course are devoted to processor design, two weeks are devoted to structural modeling, and two weeks are devoted behavioral modeling. The understanding of a non-pipelined processor model in a hardware description language, and exercises in the corresponding instruction set architecture. Conversion of the data path to a multi-cycle implementation by register insertion. Techniques for resolving pipeline hazards including bypass and stalling logic. Design of a component with interfaces, such as memory modules or peripheral devices.

Lectures: 30%

Laboratory Portion: 70%

Grading Criteria:

- Labs: 35%
- Participation: 10%
- Final project: 15%
- Final exam: 40%
- Total: 100%

Estimated ABET Category Content:

Mathematics and Basic Science: 0.0 credit units

Computing: 3.0 credit units

Engineering Topics: 3.0 credit units

Engineering Science: 0.0 credit units

Engineering Design: 3.0 credit units

Prepared By: Robert Cassidy **Date:** July 11, 2012

Senate Approved: January 10, 2012

Approved Effective: 2012 Fall Qtr

CSE 135A DIGITAL SIGNAL PROCESSING

(Required for CSE. Selected Elective for CpE and EE.)

Catalog Data: **CSE 135A Digital Signal Processing (Credit Units: 3)** Nature of sampled data, sampling theorem, difference equations, data holds, z-transform, w-transform, digital filters, Butterworth and Chebychev filters, quantization effects. Prerequisite: EECS50/CSE50. Same as EECS 152A. (Design units: 2)

Required Textbook: Alan V. Oppenheim, et al., *Discrete-Time Signal Processing (2nd Edition) (Prentice-Hall Signal Processing Series)*. 2nd Edition, Prentice Hall, 1999, ISBN-13 978-0131988422.

Recommended Textbook: None

References: John Proakis and Dimitris Manolakis, *Digital Signal Processing*, 4th Edition, Prentice Hall, 2007.

Coordinator: Hamid Jafarkhani

Relationship to Student Outcomes

This course relates to Student Outcomes: CAC a, CAC c, CAC i, EAC a, EAC c, EAC e, EAC i, EAC k.

Course Learning Outcomes. Students will:

1. Characterize sampled systems in time and frequency domain. (CAC a, EAC a)
2. Apply z-transform, DTFT, DFT and DWT to analyze and design DSP systems. (CAC a, CAC c, EAC a, EAC c)
3. Design basic FIR digital filters. (CAC a, CAC i, EAC a, EAC e, EAC i, EAC k)
4. Design basic IIR digital filters (using the bilinear transformation). (CAC a, CAC i, EAC a, EAC i, EAC k)
5. Use DSP tools such as MATLAB to analyze discrete systems and design digital filters. (CAC a, CAC i, EAC a, EAC i, EAC k)

Prerequisites by Topic

Fourier transforms and linear system theory.

Lecture Topics: None.

Class Schedule: Meets for 3 hours of lecture and 1 hour of discussion each week for 10 weeks.

Computer Usage: Students are expected to have sufficient computing to aid with the exercises, although no specific requirements are imposed. MATLAB is strongly encouraged, although people might use C/C++ or Java if they cannot get access to MATLAB.

Laboratory Projects: None.

Professional Component

Contributes toward the Computer Engineering Topics Courses and Electrical Engineering Topics Courses and Major Design experience.

Design Content Description

Approach: This course is devoted to the application of digital analysis techniques to the design of

digital processors. In particular, design of basic samples, IIR digital filters and FIR digital filters, including Butterworth and Chebychev filters and sampling filters. Design for quantization effects is also included. The homework problems emphasize the applications of these techniques to design.

Lectures: 0%

Laboratory Portion: 100%

Grading Criteria:

- Midterm exam : 50%
- Final exam: 50%
- Total: 100%

Estimated ABET Category Content:

Mathematics and Basic Science: 0.0 credit units

Computing: 0.0 credit units

Engineering Topics: 3.0 credit units

Engineering Science: 1.0 credit units

Engineering Design: 2.0 credit units

Prepared By: Robert Cassidy **Date:** December 12, 2012

Senate Approved: January 10, 2012

Approved Effective: 2012 Fall Qtr

CSE 135B DIGITAL SIGNAL PROCESSING DESIGN AND LABORATORY

(Required for CSE. Selected Elective for CpE and EE.)

Catalog Data: **CSE 135B Digital Signal Processing Design and Laboratory (Credit Units: 3)** Design and implementation of algorithms on a DSP processor and using computer simulation. Applications in signal and image processing, communications, radar, and more. Prerequisite: CSE135A/EECS152A. Same as EECS 152B. (Design units: 3)

Required Textbook: Rulph Chassaing, *Digital Signal Processing and Applications with the TMS320C6713 and TMS320C6416 DSK (Topics in Digital Signal Processing)*. 2nd Edition, Wiley-IEEE Press, 2008, ISBN-13 978-0470138663.

Recommended Textbook: None

References: Ingle, Vinay and Proakis, John, *Digital Signal Processing Using MATLAB*, 2nd edition, CL-Engineering, 2006

Coordinator: A. Lee Swindlehurst

Relationship to Student Outcomes

This course relates to Student Outcomes: CAC a, CAC c, CAC i, EAC a, EAC b, EAC c, EAC i, EAC k.

Course Learning Outcomes. Students will:

1. Characterize sampled systems in time and frequency domain. (CAC a, EAC a, EAC b)
2. Apply z-transform, DTFT, DFT and DWT to analyze and design DSP systems. (CAC a, CAC c, EAC a, EAC c)
3. Design basic FIR digital filters. (CAC a, CAC c, CAC i, EAC a, EAC b, EAC c, EAC i, EAC k)
4. Design basic IIR digital filters (using the bilinear transformation). (CAC a, CAC c, CAC i, EAC a, EAC b, EAC c, EAC i, EAC k)
5. Use DSP tools such as Matlab to analyze discrete systems and design digital filters. (CAC a, CAC i, EAC a, EAC b, EAC i, EAC k)

Prerequisites by Topic

Fourier and Z-transforms, linear system theory, C programming experience.

Lecture Topics:

- MATLAB basics (week 1)
- TMS320C6713 programming basics (weeks 1-3)
- FIR filter design (weeks 3-4)
- Spatial filter design (weeks 4-5)
- IIR filter design (week 6)
- Adaptive filter design (weeks 7-8)
- Multi-rate signal processing (week 9)
- Additional topics depending on class interest (speech coding, image processing, equalization, etc.) (week 10)

Class Schedule: Meets for 1 hour of lecture and 6 hours of laboratory each week for 10 weeks.

Computer Usage:

- Students are expected to have some experience programming in C/C++.
- Experience with MATLAB is not necessary but helpful.

Laboratory Projects: Using TMS320C6713: audio input/output, signal generation, FIR and IIR filter implementation, LMS adaptive echo cancellation. Using MATLAB: spectral analysis, FIR and IIR filter design, spatial filter design.

Professional Component

Contributes towards the Computer Science and Engineering major requirements for Engineering Topics courses and Major Design experience.

Design Content Description

Approach: This course is devoted to the application of digital signal processing techniques to the design of digital processors that implement various types of signal filtering, including static FIR and IIR filters and also dynamic adaptive filters. Students gain experience in how such digital processes are implemented in practice using a standard DSP platform (e.g., the Texas Instruments TMS320C6713 DSK) and also study more advanced design concepts using MATLAB. All homework assignments and lab projects require the students to apply design principles.

Lectures: 0%

Laboratory Portion: 100%

Grading Criteria:

- Matlab Assignments: 33%
- Hardware Labs: 33%
- Final Exam: 34%
- Total: 100%

Estimated ABET Category Content:

Mathematics and Basic Science: 0.0 credit units

Computing: 0.0 credit units

Engineering Topics: 3.0 credit units

Engineering Science: 0.0 credit units

Engineering Design: 3.0 credit units

Prepared By: Robert Cassidy **Date:** December 12, 2012

Senate Approved: December 17, 2010

Approved Effective: 2011 Fall Qtr

CSE 141 CONCEPTS IN PROGRAMMING LANGUAGES I

(Required for CSE.)

Catalog Data: **CSE 141 Concepts in Programming Languages I (Credit Units: 4)** In-depth study of several contemporary programming languages stressing variety in data structures, operations, notation, and control. Examination of different programming paradigms, such as logic programming, functional programming and object-oriented programming; implementation strategies, programming environments, and programming style. Prerequisite: Informatics42, ICS51, CSE31, EECS31 with a grade of C or better; ICS33, CSE43, Informatics45, ICS23, CSE23 with a grade of C or better. Same as COMPSCI 141 and IN4MATX 101. (Design units: 0)

Required Textbook: Robert W. Sebesta, *Concepts of Programming Languages (7th Edition)*. 7th Edition, Addison Wesley, 2005, ISBN-13 978-0321330253.

Recommended None

Textbook:

References: None

Coordinator: Shannon Tauro

Relationship to Student Outcomes

This course relates to Student Outcomes: CAC a.

Course Learning Outcomes. Students will:

1. Understand implementation details of syntax & semantic analysis for a simple programming language.
2. Recall programming paradigms and associated languages.
3. Understand and appreciate the use of languages as they pertain to application areas. (CAC a)
4. Describe operations, control-structures, and program structure of simple imperative programs. (CAC a)

Prerequisites by Topic

Basic computing skills: searching and browsing the Web, reading and sending email, downloading files, viewing and printing PDF(Adobe Acrobat) documents, and creating or saving documents for email and other purposes in plain ASCII text form (not HTML or Word attachments).

Lecture Topics:

- Foundations
- Course Overview and Introduction (Week 1)
- VonNeumann Architecture/Compilers/Interpreters (Week 1)
- Fundamentals
- Programming Language Syntax & Semantics (Week 2)
- Names, Variables, & Binding (Week 2)
- Data Types & Type Checking (Week 3)
- Scope & Lifetime (Week 3)
- Scope, Function Calls and Storage Management
- Sub-Programs & Sub-Program Implementation (Week 4, 5)
- Exploration of Languages
- Logical Programming—Prolog (Week 6, 7)
- Functional Programming—Haskell (Week 7, 8)
- Inheritance/Generic Programming—C++/Java (Week 9, 10)

Class Schedule: Meets for 3 hours of lecture, 1 hour of discussion and 1 hour of laboratory each week for 10 weeks.

Computer Usage: Windows XP, Textpad, Java

Laboratory Projects:

- Lab 1 – Von Nuemann Architecture & Parse Trees
- Lab 2 – Variables, type checking, storage, scopes
- Lab 3 – Language Paradigms
- Lab 4 – Java to C++

Professional Component

Contributes towards the Computer Science and Engineering major requirements for Engineering Topics courses.

Design Content Description

Approach:

Lectures:

Laboratory Portion:

Grading Criteria:

- Homework/Labs: 35%
- Quizzes: 15%
- Midterm Exam: 20%
- Final Exam: 30%
- Total: 100%

Estimated ABET Category Content:

Mathematics and Basic Science: 0.0 credit units

Computing: 4.0 credit units

Engineering Topics: 0.0 credit units

Engineering Science: 0.0 credit units

Engineering Design: 0.0 credit units

Prepared By: Robert Cassidy **Date:** July 11, 2012

Senate Approved: January 10, 2012

Approved Effective: 2012 Fall Qtr

CSE 142 COMPILERS AND INTERPRETERS

(Required for CSE. Selected Elective for CpE.)

Catalog Data: **CSE 142 Compilers and Interpreters (Credit Units: 4)** Introduction the theory of programming language processors covering lexical analysis, syntax analysis, semantic analysis, intermediate representations, code generation, optimization, interpretation, and run-time support. Prerequisite: CSE141/Computer Science 141/Informatics 101. Same as COMPSCI 142A. (Design units: 0)

Required Textbook: Keith Cooper, *Engineering a Compiler*. 1st Edition, Morgan Kaufmann, 2003, ISBN-13 978-1558606982.

Recommended Textbook: None

References: None

Coordinator: Shannon Tauro

Relationship to Student Outcomes

This course relates to Student Outcomes: CAC a, CAC j, CAC k.

Course Learning Outcomes. Students will:

1. Construct front and back ends of a compiler for an LL (1) language. (CAC j, CAC k)
2. Optimize linear codesegments. (CAC a)
3. Construct control flow graphs. (CAC j, CAC k)

Prerequisites by Topic

- Basic computer organization
- Assembly language programming
- Formal language grammar hierarchy
- Ability to program in a high level language

Lecture Topics:

- Overview of Compilation (Week 1)
- Language & Syntax (Week 2)
- Scanning (Week 3)
- Parsing/ Tool Generated Parsers (Weeks 4-6)
- Implementing Semantics/ Type Checking (Week 7)
- Intermediate Representation (Week 8)
- Procedure Abstraction & MIPS (Week 9)
- Code Optimizations & Register Allocation (Week 10)

Class Schedule: Meets for 3 hours of lecture, 3 hours of discussion and 3 hours of laboratory each week for 10 weeks.

Computer Usage: J2SE (the Java 2 Standard Edition SDK)

Laboratory Projects:

- Lab 1 – JFlex: a scanner generator for Java
- Lab 2 – A recursive descent parser
- Lab 3 – A semantic analyzer
- Lab 4 – Implementing an interpreter
- Lab 5 – Syntax-directed analysis
- Lab 6 – Optimization

Professional Component

Contributes towards the Computer Science and Engineering major requirements for Engineering Topic courses.

Design Content Description

Approach:

Lectures:

Laboratory Portion:

Grading Criteria:

- Six Assignments (5% each): 30% total
- Midterm: 30%
- Final Exam: 40%
- Total: 100%

Estimated ABET Category Content:

Mathematics and Basic Science: 0.0 credit units

Computing: 4.0 credit units

Engineering Topics: 0.0 credit units

Engineering Science: 0.0 credit units

Engineering Design: 0.0 credit units

Prepared By: Robert Cassidy **Date:** July 11, 2012

Senate Approved: January 21, 2009

Approved Effective: 2009 Fall Qtr

CSE 145A EMBEDDED COMPUTING SYSTEMS

(Required for CSE.)

Catalog Data: **CSE 145A Embedded Computing Systems (Credit Units: 4)** Principles of embedded computing systems: embedded systems architecture, hardware/software components, system software and interfacing, real-time operating systems, hardware/software co-development, and communication issues. Examples of embedded computing in real-world application domains. Simple programming using an embedded systems development environment. Prerequisite: (I&C SCI 46 or CSE 46) and (I&C SCI 51 or CSE 31 or EECS 31) and (I&C SCI 51 or CSE 132 or EECS 112). Same as COMPSCI 145A. (Design units: 0)

Required Textbook: Frank Vahid, *Programming Embedded Systems: An Introduction to Time-Oriented Programming*. Edition, UniWorld Publishing, 2010, ISBN-13 978-0982962602.

Recommended Textbook: None

References: None

Coordinator: Tony D. Givargis

Relationship to Student Outcomes

This course relates to Student Outcomes: CAC a, CAC i, CAC j.

Course Learning Outcomes. Students will:

1. Able to model embedded software using state machines. (CAC a, CAC j)
2. Able to interface peripheral devices with an embedded processor and write software for device drivers. (CAC a, CAC i)
3. Have knowledge of cross-computing emulators, and cross-debugging.

Prerequisites by Topic

- Programming skills in C or Java
- Basic computer architecture

Lecture Topics:

- Programming Embedded Systems
- Embedded Systems Components
- Digital Signal Processing
- Control Systems

Class Schedule: Meets for 3 hours of lecture each week for 10 weeks.

Computer Usage:

Laboratory Projects:

Professional Component

Design Content Description***Approach:******Lectures:******Laboratory Portion:*****Grading Criteria:**

- Homework: 25%
- Projects: 50%
- Midterm: 10%
- Final: 15%
- Total: 100%

Estimated ABET Category Content:

Mathematics and Basic Science: 0.0 credit units

Computing: 4.0 credit units

Engineering Topics: 4.0 credit units

Engineering Science: 4.0 credit units

Engineering Design: 0.0 credit units

Prepared By: Robert Cassidy **Date:** October 22, 2012**Senate Approved:** Pending Approval**Effective Pending** 2013 Fall Qtr**Approval:**

CSE 145B EMBEDDED COMPUTING SYSTEM LAB

(Required for CSE.)

Catalog Data: **CSE 145B Embedded Computing System Lab (Credit Units: 2)** Laboratory to accompany CSE145A/CompSci 145A Corequisite: CSE145A/Computer Science 145A. Same as COMPSCI 145B. (Design units: 0)

Required Textbook: None

Recommended Textbook: None

References: None

Coordinator: Tony D. Givargis

Relationship to Student Outcomes

This course relates to Student Outcomes: CAC a, CAC i, CAC j.

Course Learning Outcomes. Students will:

1. Able to model embedded software using state machines. (CAC a, CAC j)
2. Able to interface peripheral devices with an embedded processor and write software for device drivers. (CAC a, CAC i)
3. Have knowledge of cross-computing emulators, and cross-debugging.

Prerequisites by Topic

- Programming skills in C or Java
- Basic computer architecture

Lecture Topics:

- ATMEL AVR Development Software and Tools Introduction, Blinking LED project (Week 1)
- General Purpose I/O Introduction, Integrated LCD and Keypad Project (Week 2)
- Timer and Interrupt Programming Introduction, Alarm Clock Project (Week 3, 4)
- Pulse Width modulation Introduction, Music Generator project (Week 5, 6)
- Final Course project Proposal, Development, and Demonstrations (Week 7, 8, 9, 10)

Class Schedule: Meets for 3 hours of laboratory each week for 10 weeks.

Computer Usage:

Laboratory Projects:

Professional Component

Design Content Description

Approach:

Lectures:

Laboratory Portion:

Grading Criteria:

Estimated ABET Category Content:

Mathematics and Basic Science: 0.0 credit units

Computing: 2.0 credit units

Engineering Topics: 2.0 credit units

Engineering Science: 2.0 credit units

Engineering Design: 0.0 credit units

Prepared By: Robert Cassidy **Date:** July 11, 2012

Senate Approved: February 14, 2012

Approved Effective: 2012 Fall Qtr

CSE 161 DESIGN AND ANALYSIS OF ALGORITHMS

(Required for CSE.)

Catalog Data: **CSE 161 Design and Analysis of Algorithms (Credit Units: 4)** Techniques for efficient algorithm design, including divide-and-conquer and dynamic programming, and time and space analysis of algorithms. Fast algorithms for problems having applications in networks, computer games, graphics, and scientific computing, such as sorting, shortest paths, minimum spanning trees, network flow, and pattern matching. Prerequisite: ICS 46/CSE 46 with a grade of C or better; ICS 6B; ICS 6D. ICS 23/CSE 23 or ICS 46/CSE 46 with a grade of C or better; ICS 6B; ICS 6D; Math 2B. Same as COMPSCI 161. (Design units: 0)

Required Textbook: Thomas H. Cormen, et al., *Introduction to Algorithms, Third Edition (International Edition)*. 0 Edition, The MIT Press, 2009, ISBN-13 978-0262533058 .

Recommended Textbook: None

References: None

Coordinator: Michael Dillencourt and Dan Hirschberg

Relationship to Student Outcomes

This course relates to Student Outcomes: CAC a, EAC a, EAC b.

Course Learning Outcomes. Students will:

1. Use recursion and dynamic programming to design algorithms. (CAC a)
2. Analyze time complexity of algorithms. (CAC a, EAC a, EAC b)

Prerequisites by Topic

Data structures, discrete mathematics, and calculus.

Lecture Topics:

- Introduction (Week 1)
- Searching, sorting, lower bounds (Week 2, 3)
- Divide-and-conquer (Week 4, 5)
- Dynamic programming (Week 6, 7)
- Graph algorithms (Week 8, 9)
- Other topics (Week 10)

Class Schedule: Meets for 3 hours of lecture and 3 hours of discussion each week for 10 weeks.

Computer Usage: None.

Laboratory Projects: None.

Professional Component

Contributes toward the Computing Topics experience.

Design Content Description

Approach: None.

Lectures: 0%

Laboratory Portion: 0%

Grading Criteria:

- Homework: 10%
- Quizzes: 20%
- Midterm Exams: 30%
- Final Exam: 40%
- Total: 100%

Estimated ABET Category Content:

Mathematics and Basic Science: 0.0 credit units

Computing: 4.0 credit units

Engineering Topics: 4.0 credit units

Engineering Science: 4.0 credit units

Engineering Design: 0.0 credit units

Prepared By: Robert Cassidy **Date:** October 22, 2012

Senate Approved: Pending Approval

Effective Pending 2013 Fall Qtr

Approval:

CSE 181A SENIOR DESIGN PROJECT

(Required for CSE.)

Catalog Data: **CSE 181A Senior Design Project (Credit Units: 3)** Teaches problem definition, detailed design, integration and testability with teams of students specifying, designing, building, and testing complex systems. Lectures include engineering values, discussions, and ethical ramifications of engineering decisions. Corequisite: CSE135A/EECS152A. Prerequisite: CompSci 143A or EECS 111. CSE 181A and CSE 181B and CSE 181CW must be taken in the same academic year. Computer Science and Engineering majors have first consideration for enrollment. (Design units: 3)

Required Textbook: None

Recommended Textbook: None

References: Reference materials for supplied project equipment.

Coordinator: Mark Bachman

Relationship to Student Outcomes

This course relates to Student Outcomes: CAC b, CAC c, CAC d, CAC e, CAC f, CAC g, CAC h, CAC i, CAC j, EAC c, EAC d, EAC e, EAC f, EAC g, EAC h, EAC i, EAC j, EAC k.

Course Learning Outcomes. Students will:

1. Work as part of a multidisciplinary team to specify and design a computer-based system. (CAC c, CAC d, CAC f, EAC c, EAC d, EAC e, EAC g)
2. Understand and apply the system design process, including requirements analysis, specifications, and detailed design documentation. (CAC b, CAC c, CAC j, EAC c, EAC e)
3. Apply commodity and standards-based components to their design through ability to understand API documentation and part data sheets for interfacing. (CAC c, CAC i, EAC c, EAC k)
4. Consider design constraints including manufacturability, testability, and maintainability. (CAC c, EAC c, EAC e)
5. Consider ethical, social, health, safety, and environmental impacts of their designs. (CAC e, CAC g, EAC f, EAC h)
6. Understand how industry mandates continuing education to ensure that designers will be able to address contemporary issues. (CAC h, EAC i, EAC j)

Prerequisites by Topic

Microcontroller programming

- Lecture Topics:**
- Microcontroller programming (1 week)
 - System testing (1 week)
 - Contemporary issues (1 week)
 - Ethics (1 week)
 - Other topics vary (6 weeks)

Class Schedule: Meets for 1 hour of lecture, 1 hour of discussion and 3 hours of laboratory each week for 10 weeks.

Computer Usage: Determined by choice of components.

Laboratory Projects: Determined by student proposal.

Professional Component

Contributes towards the Computer Science and Engineering major requirements for Engineering Topics courses.

Design Content Description

Approach: Emphasis is placed on planning, research, problem definitions and lectures that set the context for the projects while defining the common platform, and implementation of work using appropriate engineering standards.

Lectures: 100%

Laboratory Portion: 0%

- Grading Criteria:**
- Project Progress: 30%
 - Project Documentation: 35%
 - Final presentation: 35%
 - Total: 100%

Estimated ABET Category Content:

Mathematics and Basic Science: 0.0 credit units

Computing: 0.0 credit units

Engineering Topics: 3.0 credit units

Engineering Science: 0.0 credit units

Engineering Design: 3.0 credit units

Prepared By: Robert Cassidy **Date:** October 23, 2012

Senate Approved: Pending Approval

Effective Pending Approval: 2013 Fall Qtr

CSE 181B SENIOR DESIGN PROJECT

(Required for CSE.)

Catalog Data: **CSE 181B Senior Design Project (Credit Units: 3)** Teaches problem definition, detailed design, integration and testability with teams of students specifying, designing, building, and testing complex systems. Lectures include engineering values, discussions, and ethical ramifications of engineering decisions. Corequisite: CSE135A/EECS 152A. Prerequisite: CSE104/Computer Science 143A and CSE 181A. CSE 181A and CSE 181B and CSE 181CW must be taken in the same academic year. (Design units: 3)

Required Textbook: None

Recommended Textbook: None

References: Reference material for supplied project equipment.

Coordinator: Mark Bachman

Relationship to Student Outcomes

This course relates to Student Outcomes: CAC b, CAC c, CAC d, CAC e, CAC f, CAC g, CAC i, CAC j, CAC k, EAC b, EAC c, EAC d, EAC e, EAC f, EAC g, EAC h, EAC k.

Course Learning Outcomes. Students will:

1. Work as part of a multidisciplinary team to develop and integrate the components of a computer-based system. (CAC c, CAC d, CAC f, EAC c, EAC d, EAC e, EAC g)
2. Define a timeline for project development and report status on the team's progress. (CAC d, CAC i, CAC j, EAC b, EAC d, EAC e, EAC k)
3. Develop hardware or software to interface components and produce a functional system. (CAC b, CAC c, CAC j, CAC k, EAC c, EAC e, EAC k)
4. Test the functionality of the components and the system as a whole. (CAC d, CAC k, EAC b, EAC d, EAC k)
5. Consider ethical, social, health, safety, and environmental impacts of their designs. (CAC e, CAC g, EAC f, EAC h)

Prerequisites by Topic

Microcontroller programming

Lecture Topics:

- Engineering lifecycle
- Modeling and simulation
- Detailed Design
- ilities (Manufacturability, testability, reliability, maintainability, supportability)
- Engineering decision-making, ethics, and consequences

Class Schedule: Meets for 1 hour of lecture, 1 hour of discussion and 3 hours of laboratory each week for 10 weeks.

Computer Usage: Determined by choice of components.

Laboratory Projects: Proposed by student.

Professional Component

Contributes towards the Computer Science and Engineering major requirements for Engineering Topics courses.

Design Content Description

Approach: Emphasis is placed on planning, research, problem definitions and lectures that set the context for the projects while defining the common platform, and implementation of work using appropriate engineering standards.

Lectures: 10%

Laboratory Portion: 90%

Grading Criteria:

- Project Progress: 30%
- Project Documentation: 20%
- Midterm: 25%
- Final Exam: 25%
- Total: 100%

Estimated ABET Category Content:

Mathematics and Basic Science: 0.0 credit units

Computing: 0.0 credit units

Engineering Topics: 3.0 credit units

Engineering Science: 0.0 credit units

Engineering Design: 3.0 credit units

Prepared By: Robert Cassidy **Date:** October 23, 2012

Senate Approved: June 15, 2007

Approved Effective: 2007 Fall Qtr

CSE 181CW SENIOR DESIGN PROJECT

(Required for CSE.)

Catalog Data: **CSE 181CW Senior Design Project (Credit Units: 3)** Completion, documentation, and presentation of projects started in CSE 181A-B. Teaches engineering documentation writing and presentation skills. Students write comprehensive project reports individually. Each student participates in a public presentation of the project's results. Prerequisite: CSE181A-B and satisfactory completion of the lower-division writing requirement. CSE 181A and CSE 181B and CSE 181CW must be taken in the same academic year. (Design units: 0)

Required Textbook: David F. Beer, *A Guide to Writing as an Engineer*. 3rd Edition, Wiley, 2009, ISBN-13 978-0470417010.

Elaine Maimon, et al., *The Brief McGraw-Hill Handbook with MLA & APA Updates*. 1st Edition, McGraw-Hill Humanities/Social Sciences/Languages, 2010, ISBN-13 978-0077396220.

Recommended Textbook: None

References: Sally Barr Ebest, et al., *Writing from A to Z: The Easy-To-Use Reference Handbook*. 5th Edition, McGraw-Hill Companies, 2005, ISBN-13 978-0072961492.

Coordinator: Elaheh Bozorgzadeh and Jeffrey M. Foresta

Relationship to Student Outcomes

This course relates to Student Outcomes: CAC d, CAC e, CAC f, EAC b, EAC d, EAC f, EAC g.

Course Learning Outcomes. Students will:

1. Recognize ethical engineering practices represented in written and oral communications in the workplace. (CAC f, EAC g)
2. Demonstrate the effective use of principled reasoning to evaluate/solve ethical, unethical, and non-ethical situations in and engineering environment. (CAC e, EAC f)
3. Describe the basic process model and identify the key elements that form the basis for effective technical writing and sound scientific research. (EAC b)
4. Demonstrate the ability to make appropriate decisions regarding the form, format, and style of a proposed technical document based on the target audience, method of distribution, and useful life of the document. (CAC f, EAC g)
5. Use effective methodologies for reviewing, editing, and revising a technical document. (CAC f, EAC g)
6. Write an accurate and concise resume and cover letter. (CAC f, EAC g)
7. Create dynamic presentations of technical data using effective visual aids and vocal skills. (CAC f, EAC g)
8. Describe the form and organization of procedures and results used in scientific writing.
9. Demonstrate effective research strategies and methodologies for evaluating the credibility and

relevance of source material during the research process. (CAC d, EAC d)

10. Demonstrate the ability to critically evaluate your own written and oral communication skills, and develop a strategy for continued growth in both skill areas. (CAC f, EAC g)

Prerequisites by Topic

Lower-division writing

Lecture Topics:

Importance of effective communication skills; technical writing in the workplace; benefits and drawbacks of visual and verbal modalities; sender/receiver relationships and the technical writing process model; legal and ethical responsibilities in engineering; form and organization of procedures used in scientific writing for the laboratory; ethical reporting of research findings using the scientific method; types of readers and determining the purpose of a technical document; limiting the scope and planning the proper tone for a technical document; requirements for journal article review and presentation; common errors that can degrade the effectiveness of written documentation; non-linear organizational techniques for constructing a research paper outline; requirements for journal article review and presentation; evaluating your sources for usefulness and credibility; ethical use of source material in your research papers; parallel construction and sentence logic to attain clear writing; stylistic considerations in technical writing; methodologies for effectively reviewing and editing your document; readability analysis and fog index techniques; effective cover letters/resumes; interviewing preparation/strategies and techniques; basic guidelines of copyright; trademark; patent laws. Documents prevalent in the engineering workplace. Internal and external business proposals.

Class Schedule:

Meets for 3 hours of lecture, 1 hour of discussion and 1 hour of laboratory each week for 10 weeks.

Computer Usage:

Laboratory Projects:

Professional Component

Contributes towards the Computer Science and Engineering major requirements for Engineering Topics courses.

Design Content Description

Approach:

Lectures:

Laboratory Portion:

Grading Criteria:

- Periodic homework assignments 10%
- Periodic Quizzes: 10%
- Midterm research paper 20%
- Senior Design technical Paper 30%
- Oral presentation of senior design paper 20%
- Final Exam 10%
- Total: 100%

Estimated ABET Category Content:

Mathematics and Basic Science: 0.0 credit units

Computing: 0.0 credit units

Engineering Topics: 3.0 credit units

Engineering Science: 3.0 credit units

Engineering Design: 0.0 credit units

Prepared By: Robert Cassidy **Date:** July 11, 2012

Senate Approved: June 15, 2007

Approved Effective: 2007 Fall Qtr

COMPSCI 143A PRINCIPLES OF OPERATING SYSTEMS

(Required for CSE.)

Catalog Data: **COMPSCI 143A Principles of Operating Systems (Credit Units: 4)** Principles and concepts of process and resource management, especially as seen in operating systems. Processes, memory management, protection, scheduling, file systems, and I/O systems are covered. Concepts illustrated in the context of several well-known systems. Prerequisite: (CSE 46 or I&C SCI 46) and (I&C SCI 51 or (CSE 31 or EECS 31)) with grades of C or better . Same as CSE 104. Only one course from COMPSCI 143A, CSE 104, EECS 111 may be taken for credit. (Design units: 0)

Required Textbook: Lubomir F. Bic, *Operating Systems Principles*. 1st Edition, Prentice Hall, 2002, ISBN-13 978-0130266118.

Recommended Textbook: None

References: NONE.

Coordinator: Michael Dillencourt and Nalini Venkatasubramanian

Relationship to Student Outcomes

No student outcomes specified.

Course Learning Outcomes. Students will:

Prerequisites by Topic

- Computer system organization (hardware and software) including: interrupt handling, memory caches, direct memory access instruction sets
- Basic programming skills in any high-level programming language
- Data structures

Lecture Topics:

- Processes and their interactions
- Higher-level Synchronization Schemes
- The OS Kernel
- Scheduling
- Deadlocks
- Physical and Virtual Memory
- Linking and Sharing
- File Systems
- I/O

Class Schedule: Meets for 3 hours of lecture and 1 hour of discussion each week for 10 weeks.

Computer Usage: Java J2SE, Any C compiler

Laboratory Projects: OS Scheduler Comparison

Professional Component

Contributes towards the Computer Science and Engineering major requirements for Engineering and Computer Topic courses.

Design Content Description

Approach:

- Approach:
- Lectures:
- Laboratory Portion:

Lectures: 0%

Laboratory Portion: 0%

Grading Criteria:

- Discussion sections and homework assignments are 15% of final grade.
- There will be 4 in-class quizzes with the best 3 scores counting toward 40% of the final grade and the final exam counting 45%.

Estimated ABET Category Content:

Mathematics and Basic Science: 0.0 credit units

Computing: 4.0 credit units

Engineering Topics: 4.0 credit units

Engineering Science: 4.0 credit units

Engineering Design: 0.0 credit units

Prepared By: Jennifer Vargas **Date:** December 5, 2012

Senate Approved: January 10, 2012

Approved Effective: 2012 Fall Qtr

EECS 148 COMPUTER NETWORKS

(Required for CSE and CpE.)

Catalog Data: **EECS 148 Computer Networks (Credit Units: 4)** Computer network architectures, protocols, and applications. Internet congestion control, addressing, and routing. Local area networks. Multimedia networking. Prerequisite: EECS55 or STATS 67. Same as COMPSCI 132. (Design units: 2)

Required Textbook: James F. Kurose, *Computer Networking: A Top-Down Approach Featuring the Internet*. 0 Edition, Addison Wesley, 2004, ISBN-13 978-0321227355.

Recommended Textbook: None

References:

- Computer Networks, Andrew Tanenbaum & David Wetherall, Prentice-Hall
- Communication Networks: Fundamental Concepts and Key Architectures, Albert Leon-Garcia & Indra Widjaja, McGraw Hill
- Communication Networks: A First Course, Jean Walrand, McGraw Hill
- Communication Networks: A systems Approach, Larry Peterson & Bruce Davie, Morgan Kaufman
- High-Performance Communication Networks, Jean Walrand & Pravin Varaiya, Morgan Kaufman
- Data and Computer Communications, William Stallings, Prentice-Hall

Coordinator: Scott Jordan and Athina Markopoulou

Relationship to Student Outcomes

This course relates to Student Outcomes: CAC a, CAC b, CAC d, CAC f, CAC g, CAC j, EAC a, EAC d, EAC e, EAC g, EAC h.

Course Learning Outcomes. Students will:

1. Calculate transmission, propagation, and queuing delays. (CAC a, EAC a)
2. Analyze LAN medium access protocols, and explain LAN switch and router operation. (CAC b, EAC e)
3. Explain Internet addressing and naming. (CAC a, EAC a)
4. Analyze Internet routing and flow control protocols. (CAC a, EAC a)
5. Build basic probability models of networking phenomena. (CAC a, CAC b, CAC j, EAC a, EAC e)
6. Describe when circuit-switching or packet-switching is more appropriate. (CAC a, EAC a)
7. Explain architectural difference between types of networks. (CAC b, EAC e)
8. Communicate how the architecture of a network relates to the requirements of a target application. (CAC d, CAC f, CAC g, CAC j, EAC d, EAC g, EAC h)

Prerequisites by Topic

- Probability

Lecture Topics:

- Telephone networks (1 week)
- Network architecture (1 week)
- Internet applications (1 week)
- Flow control (1 week)
- Addressing & routing (1.5 weeks)
- Local area networks (1.5 weeks)
- Security (0.5 weeks)
- Convergence and Communications Law (1 week)
- Project presentations (1.5 weeks)

Class Schedule: Meets for 3 hours of lecture and 1 hour of discussion each week for 10 weeks.

Computer Usage: ◦ Optional

Laboratory Projects: ◦ None

Professional Component

- Contributes toward the Electrical Engineering and Computer Science Major requirements

Design Content Description

Approach: Three weeks of this course are devoted to elementary design of basic routing and flow control protocols. In particular, time is devoted to (a) the design of basic routing algorithms, (b) the design of basic flow control protocols. Lectures: 50%, Homework – 50%

Lectures: 50%

Laboratory Portion:

Grading Criteria:

- Problem Sets: 25%
- Project: 35%
- Final: 40%
- Total 100%

Estimated ABET Category Content:

Mathematics and Basic Science: 0.0 credit units

Computing: 4.0 credit units

Engineering Topics: 4.0 credit units

Engineering Science: 2.0 credit units

Engineering Design: 2.0 credit units

Prepared By: Robert Cassidy **Date:** November 14, 2012

Senate Approved: Pending Approval

Effective Pending 2013 Spring Qtr

Approval:

IN4MATX 43 INTRODUCTION TO SOFTWARE ENGINEERING

(Required for CSE.)

Catalog Data: **IN4MATX 43 Introduction to Software Engineering (Credit Units: 4)** Concepts, methods, and current practice of software engineering. Large-scale software production, software life cycle models, principles and techniques for each stage of development. Laboratory project applying these concepts. Prerequisite: In4matx 42 with a grade of C or better. Students may not receive credit for both ICS 52 and In4matx 43. Only one course from IN4MATX 43, I&C SCI 52 may be taken for credit. (Design units: 0)

Required Textbook: None

Recommended Textbook: None

References: None

Coordinator: André van der Hoek

Relationship to Student Outcomes

This course relates to Student Outcomes: CAC a, CAC i, CAC k, EAC e, EAC k.

Course Learning Outcomes. Students will:

1. Understand the need for a range of methods and tools to support SE activities. (CAC a)
2. Knowledge of widely-used SE methods. (CAC i, EAC k)
3. Ability to utilize a variety of current tools typically used by practitioners. (CAC i)
4. Decide on the most appropriate method, approach, and tool to use to carry out SE associated activities. (CAC k, EAC e)

Prerequisites by Topic

Lecture Topics:

- Introduction to Software Engineering (1 week)
- Software Architecture (1 week)
- Evolution (1 week)
- Software Process (1 week)
- User Orientation (1 week)
- Requirements (1 week)
- Notations (1 week)
- Testing and Analysis (1 week)
- Tools (1 week)

Class Schedule: Meets for 3 hours of lecture and 1 hour of discussion each week for 10 weeks.

Computer Usage:

Laboratory Projects:

Professional Component**Design Content Description*****Approach:******Lectures:******Laboratory Portion:*****Grading Criteria:**

- Assignments: 30%
- Midterm: 30%
- Final: 40%
- Total: 100%

Estimated ABET Category Content:

Mathematics and Basic Science: 0.0 credit units

Computing: 4.0 credit units

Engineering Topics: 0.0 credit units

Engineering Science: 0.0 credit units

Engineering Design: 0.0 credit units

Prepared By: Jennifer Vargas **Date:** November 5, 2012**Senate Approved:** February 9, 2004**Approved Effective:** 2004 Fall Qtr

I&C SCI 6B DISCRETE MATHEMATICS: BOOLEAN ALGEBRA AND LOGIC

(Required for CSE.)

Catalog Data: **I&C SCI 6B Discrete Mathematics: Boolean Algebra and Logic (Credit Units: 4)** Relations and their properties; Boolean algebras; formal languages; finite automata. Prerequisite: high school mathematics through trigonometry. (Design units: 0)

Required Textbook: Kenneth Rosen, *Discrete Mathematics and Its Applications*. 6th Edition, McGraw-Hill Science/Engineering/Math, 2006, ISBN-13 978-0073229720.

Recommended Textbook: None

References: None

Coordinator: Michael Dillencourt

Relationship to Student Outcomes

No student outcomes specified.

Course Learning Outcomes. Students will:

1. Can use, manipulate, and analyze Boolean expressions & functions
2. Can use, manipulate, and analyze propositional & predicate logic statements
3. Can construct and analyze simple finite state automata

Prerequisites by Topic

Lecture Topics:

- Logic, Propositional equivalences, Predicates and quantifiers (Week 1)
- Nested quantifiers, Rules of inference, Introduction to proofs (Week 2)
- Proof methods and strategy, Sets, Functions (Week 3)
- Relations and their properties, n-ary relations and their applications (Week 4)
- Matrices, Representing relations, Closure of relations (Week 5)
- Equivalence relations, Partial orderings (Week 6)
- Boolean functions, Representing Boolean functions (Week 7)
- Logic gates, Languages and grammars (Week 8)
- Finite state machines (Week 9)
- Turing machines (Week 10)

Class Schedule: Meets for 3 hours of lecture and 2 hours of discussion each week for 10 weeks.

Computer Usage:

Laboratory Projects:

Professional Component

Contributes toward Mathematics and Basic Science.

Design Content Description***Approach:******Lectures:******Laboratory Portion:*****Grading Criteria:**

- Homework: 5%
- Quizzes: 35%
- Midterm: 25%
- Final: 35%
- Total: 100%

Estimated ABET Category Content:

Mathematics and Basic Science: 4.0 credit units

Computing: 0.0 credit units

Engineering Topics: 0.0 credit units

Engineering Science: 0.0 credit units

Engineering Design: 0.0 credit units

Prepared By: Robert Cassidy **Date:** July 11, 2012**Senate Approved:** February 3, 2011**Approved Effective:** 2011 Fall Qtr

I&C SCI 6D DISCRETE MATHEMATICS FOR COMPUTER SCIENCE

(Required for CSE.)

Catalog Data: **I&C SCI 6D Discrete Mathematics for Computer Science (Credit Units: 4)** Covers essential tools from discrete mathematics used in computer science with an emphasis on the process of abstracting computational problems and analyzing them mathematically. Topics include: mathematical induction, combinatorics, and recurrence relations. Prerequisite: high school mathematics through trigonometry. (Design units: 0)

Required Textbook: Kenneth Rosen, *Discrete Mathematics and Its Applications*. 6th Edition, McGraw-Hill Science/Engineering/Math, 2006, ISBN-13 978-0073229720.

Recommended Textbook: None

References: None

Coordinator: Gopi Meenakshisundaram

Relationship to Student Outcomes

No student outcomes specified.

Course Learning Outcomes. Students will:

1. Be able to apply discrete mathematics to computer science problems.

Prerequisites by Topic

High school mathematics through trigonometry

Lecture Topics:

- Logic and proofs (week 1)
- Sets, Sequences, Functions (week 2)
- Algorithms. Sections (Week 3)
- Integers, counting, and matrices (Week 4)
- Induction and recursion (Week 5)
- Permutations and Combinations (Week 6)
- Probability (Week 7)
- Combinatorics 1: Recurrence relations (Week 8)
- Combinatorics 2: Generating functions and inclusion/exclusion (Week 9)

Class Schedule: Meets for 3 hours of lecture and 2 hours of discussion each week for 10 weeks.

Computer Usage: None

Laboratory Projects: None

Professional Component

None

Design Content Description***Approach:******Lectures:******Laboratory Portion:*****Grading Criteria:**

- Homework: 20%
- Quizzes: 20%
- Midterm(s): 25%
- Final: 35%

Estimated ABET Category Content:

Mathematics and Basic Science: 4.0 credit units

Computing: 0.0 credit units

Engineering Topics: 0.0 credit units

Engineering Science: 0.0 credit units

Engineering Design: 0.0 credit units

Prepared By: Robert Cassidy **Date:** July 11, 2012**Senate Approved:** February 3, 2011**Approved Effective:** 2011 Fall Qtr

MATH 2A SINGLE-VARIABLE CALCULUS

(Required for AE, BME, BMEP, CE, CSE, ChE, CpE, EE, EnE, GE, ME and MSE.)

Catalog Data: **MATH 2A Single-Variable Calculus (Credit Units: 4)** Introduction to derivatives, calculation of derivatives of algebraic and trig functions; applications including curve sketching, related rates and optimization. Antiderivatives. Prerequisite: pass the UCI Calculus Placement Test no more than one year before the start of the quarter in which Mathematics 2A will be taken, or receive a grade of C (2.0) or better in Mathematics 1B at UCI, or receive a score of 3 on the AP Calculus AB exam. (Design units: 0)

Required Textbook: James Stewart, *Calculus: Early Transcendentals (Textbooks Available with Cengage Youbook)*. 7th Edition, Brooks Cole, 2010, ISBN-13 978-0538497909.

Recommended Textbook: None

References: none

Coordinator:

Relationship to Student Outcomes

No student outcomes specified.

Course Learning Outcomes. Students will:

Prerequisites by Topic

none

Lecture Topics:

- Review of essential functions
- Limit of a function
- Calculating limits using limit laws
- Continuity
- Tangents velocities and other rates of change
- Derivatives, derivatives as functions
- Differentiation formulas
- Derivatives of trigonometric functions
- The Chain Rule
- Implicit differentiation
- Higher derivatives
- Related rates
- Maxima and minima of functions
- The mean-value theorem
- Limits at infinity
- Summary of curve sketching
- Optimization problems
- Newton's method
- Antiderivatives
- Areas and distances
- Definite integral
- The fundamental theorem of calculus

Class Schedule: Meets for 3 hours of lecture and 2 hours of discussion each week for 10 weeks.

Computer Usage: none

Laboratory Projects: none

Professional Component

Contributes toward Mathematics and Basic Science.

Design Content Description

Approach:

Lectures: 0%

Laboratory Portion: 0%

Grading Criteria:

- Quizzes & Homework: 20%
- Midterm I: 20%
- Midterm II: 20%
- Final: 40%
- Total: 100%

Estimated ABET Category Content:

Mathematics and Basic Science: 4.0 credit units

Computing: 0.0 credit units

Engineering Topics: 0.0 credit units

Engineering Science: 0.0 credit units

Engineering Design: 0.0 credit units

Prepared By: Robert Cassidy **Date:** December 3, 2012

Senate Approved: March 9, 2009

Approved Effective: 2009 Fall Qtr

MATH 2B SINGLE-VARIABLE CALCULUS

(Required for AE, BME, BMEP, CE, CSE, ChE, CpE, EE, EnE, GE, ME and MSE.)

Catalog Data: **MATH 2B Single-Variable Calculus (Credit Units: 4)** Definite integrals; the Fundamental theorem of calculus. Applications of integration including finding areas and volumes. Techniques of integration. Logarithmic and exponential functions. Prerequisite: MATH 2A. (Design units: 0)

Required Textbook: James Stewart, *Calculus: Early Transcendentals (Textbooks Available with Cengage Youbook)*. 7th Edition, Brooks Cole, 2010, ISBN-13 978-0538497909.

Recommended Textbook: None

References: none

Coordinator:

Relationship to Student Outcomes

No student outcomes specified.

Course Learning Outcomes. Students will:

Prerequisites by Topic

none

Lecture Topics:

- Antiderivatives, Areas and Distances
- Definite Integral
- Fundamental Theorem of Calculus
- Indefinite Integral and The Net Change Theorem
- The Substitution Rule
- Area Between Two Curves
- Volumes by Slices
- Volumes by Shells
- Average Value of a Function
- Inverse Functions
- Exponential Functions and their Derivatives
- Logarithmic Functions
- Derivatives of Logarithmic Functions
- Exponential Growth/Decay
- Inverse Trigonometric Functions and their Derivatives
- L'Hospital's Rule
- Integration by Parts
- Trigonometric Integrals
- Method of Trigonometric Substitutions
- Method of Partial Fractions
- Improper Integrals
- Arc Length for a Graph
- Curves Defined by Parametric Equations
- Calculus with Parametric Curves-Tangents and Arc Length
- Calculus with Parametric Curves – Surface Area

Class Schedule: Meets for 3 hours of lecture and 2 hours of discussion each week for 10 weeks.

Computer Usage: none

Laboratory Projects:**Professional Component**

Contributes toward Mathematics and Basic Science.

Design Content Description

Approach:

Lectures: 0%

Laboratory Portion: 0%

Grading Criteria:

- Homework: 10%
- Quizzes: 10%
- Midterms: 40% (20% each)
- Final: 40%
- Total: 100%

Estimated ABET Category Content:

Mathematics and Basic Science: 4.0 credit units

Computing: 0.0 credit units

Engineering Topics: 0.0 credit units

Engineering Science: 0.0 credit units

Engineering Design: 0.0 credit units

Prepared By: Robert Cassidy **Date:** December 3, 2012

Senate Approved: February 3, 2011

Approved Effective: 2011 Fall Qtr

MATH 2D MULTIVARIABLE CALCULUS

(Required for AE, BME, BMEP, CE, CSE, ChE, CpE, EE, EnE, GE, ME and MSE.)

Catalog Data: **MATH 2D Multivariable Calculus (Credit Units: 4)** Differential and integral calculus of real-valued functions of several real variables, including applications. Polar coordinates. Prerequisite: MATH 2A and MATH 2B. MATH 2D and MATH H2D may not both be taken for credit. (Design units: 0)

Required Textbook: James Stewart, *Calculus: Early Transcendentals (Textbooks Available with Cengage Youbook)*. 7th Edition, Brooks Cole, 2010, ISBN-13 978-0538497909.

Recommended Textbook: None

References: Required text: "Calculus or Multivariable Calculus" by James Stewart, 6th edition, UCI custom edition, ISBN 978-1111023096.

Coordinator:

Relationship to Student Outcomes

No student outcomes specified.

Course Learning Outcomes. Students will:

Prerequisites by Topic

Lecture Topics:

- 3-Dimensional Coordinate Systems
- Vectors
- The Dot Product
- The Cross Product
- Equations of Lines and Planes
- Cylinders and Quadric Surfaces
- Cylindrical and Spherical Coordinates
- Vector Functions and Space Curves
- Functions of Several Variables
- Level Curves, Level Surfaces
- Limits and Continuity
- Partial Derivatives
- Tangent Planes and Linear Approximations
- The Chain Rule
- Directional Derivatives and the Gradient Vector
- Maximum and Minimum Values
- Lagrange Multipliers
- Double Integrals over Rectangles
- Iterated Integrals
- Double Integrals over General Regions
- Double Integrals in Polar Coordinates
- Applications of Double Integrals
- Triple Integrals, Triple Integrals in Cylindrical and Spherical Coordinates
- Polar Coordinates

Class Schedule: Meets for 3 hours of lecture and 2 hours of discussion each week for 10 weeks.

Computer Usage:

Laboratory Projects:

Professional Component

Contributes toward Mathematics and Basic Science

Design Content Description

Approach:

Lectures: 0%

Laboratory Portion: 0%

Grading Criteria:

- Quizzes: 25%
- Homework: 10%
- Midterm: 25%
- Final: 40%
- Total: 100%

Estimated ABET Category Content:

Mathematics and Basic Science: 4.0 credit units

Computing: 0.0 credit units

Engineering Topics: 0.0 credit units

Engineering Science: 0.0 credit units

Engineering Design: 0.0 credit units

Prepared By: Robert Cassidy **Date:** December 3, 2012

Senate Approved: February 3, 2011

Approved Effective: 2011 Fall Qtr

MATH 3A INTRODUCTION TO LINEAR ALGEBRA

(Not required for any major. Selected Elective for CSE.)

Catalog Data: **MATH 3A Introduction to Linear Algebra (Credit Units: 4)** Vectors, matrices, linear transformations, dot products, determinants, systems of linear equations, vector spaces, subspaces, dimension. Corequisite: MATH 13. Prerequisite: MATH 2J and MATH 4. (Design units: 0)

Required Textbook: Steve Leon, *Linear Algebra with Applications (8th Edition)*. 8th Edition, Pearson, 2009, ISBN-13 978-0136009290.

Recommended Textbook: None

References: None

Coordinator:

Relationship to Student Outcomes

No student outcomes specified.

Course Learning Outcomes. Students will:

Prerequisites by Topic

Lecture Topics:

- Vector Spaces: Definitions and Examples
- Linear Independence
- Basis and Dimensions
- Change of Basis
- Row Space and Column Space
- Linear Transformations: Definitions and Examples
- Matrix Representation of Linear Transformations
- Similarity
- Orthogonality: The Scalar Product in \mathbb{R}^n
- Orthogonal Subspaces
- Least Square Problems
- Inner Product Spaces
- Orthonormal Sets
- The Gram-Schmidt Orthogonalization Process

Class Schedule: Meets for 3 hours of lecture and 2 hours of discussion each week for 10 weeks.

Computer Usage:

Laboratory Projects:

Professional Component

Contributes toward Mathematics and Basic Science.

Design Content Description

Approach:

Lectures:

Laboratory Portion:

Grading Criteria:

- Quizzes: 30%
- Midterm: 30%
- Final: 40%
- Total: 100%

Estimated ABET Category Content:

Mathematics and Basic Science: 4.0 credit units

Computing: 0.0 credit units

Engineering Topics: 0.0 credit units

Engineering Science: 0.0 credit units

Engineering Design: 0.0 credit units

Prepared By: Robert Cassidy **Date:** July 11, 2012

Senate Approved: January 12, 2010

Approved Effective: 2010 Fall Qtr

MATH 3D ELEMENTARY DIFFERENTIAL EQUATIONS

(Required for AE, BME, BMEP, CE, ChE, CpE, EE, EnE, GE, ME and MSE.)

Catalog Data: **MATH 3D Elementary Differential Equations (Credit Units: 4)** Linear differential equations, variation of parameters, constant coefficient cookbook, systems of equations, Laplace transforms, series solutions. Further topics as time permits. Prerequisite: MATH 2D and MATH 2J. (Design units: 0)

Required Textbook: Gabriel Costa, *Schaum's Outline of Differential Equations, 3rd edition (Schaum's Outline Series)*. 3rd Edition, McGraw-Hill, 2006, ISBN-13 978-0071456876.

Recommended Textbook: None

References: Required-free online Differential Equations text by Jiri Lebl at <http://www.jirka.org/diffyqs/>

Coordinator:

Relationship to Student Outcomes

No student outcomes specified.

Course Learning Outcomes. Students will:

Prerequisites by Topic

Lecture Topics:

- Linear Differential Equations
- Variation of Parameters
- Constant Coefficient Cookbook
- Systems of Equations
- Laplace Transforms
- Series Solutions
- Further Topics as Time Permits

Class Schedule: Meets for 3 hours of lecture and 2 hours of discussion each week for 10 weeks.

Computer Usage:

Laboratory Projects:

Professional Component

Design Content Description

Approach:

Lectures:

Laboratory Portion:

Grading Criteria:

Estimated ABET Category Content:

Mathematics and Basic Science: 0.0 credit units

Computing: 0.0 credit units

Engineering Topics: 0.0 credit units

Engineering Science: 0.0 credit units

Engineering Design: 0.0 credit units

Prepared By: Robert Cassidy **Date:** December 3, 2012

Senate Approved: January 17, 2006

Approved Effective: 2006 Fall Qtr

PHYSICS 7C CLASSICAL PHYSICS

(Required for AE, BME, BMEP, CE, CSE, ChE, CpE, EE, EnE, GE, ME and MSE.)

Catalog Data: **PHYSICS 7C Classical Physics (Credit Units: 4)** Topics include force; energy; momentum; rotation and gravity. Corequisite: PHYSICS 7LC and MATH 2B. Prerequisite: MATH 2A and one of the following: a passing score on the UCI Physics Placement exam, or a 4 or better on the Physics AP Exam C, Part I or II, or a grade of C or better in PHYSICS 2. PHYSICS 7C may not be taken for credit after PHYSICS 7A or PHYSICS 7B. (Design units: 0)

Required Textbook: Roger A. Freedman, *University Physics Volumes 1 & 2 and MasteringPhysics with Pearson eText Student Access Code Card (13th Edition)*. 13th Edition, Addison-Wesley, 2011, ISBN-13 978-0321788603.

Recommended Textbook: None

References: None

Coordinator:

Relationship to Student Outcomes

No student outcomes specified.

Course Learning Outcomes. Students will:

Prerequisites by Topic

none

Lecture Topics:

- Physics and Measurement: Standards of Length, Mass, and Time. Matter and Model Building. Density and Atomic Mass. Dimensional Analysis. Conversion of Units. Estimates and Order-of-Magnitude Calculations. Significant Figures.
- Motion in One Dimension: Position, Velocity, and Speed. Instantaneous Velocity and Speed. Acceleration. Motion Diagrams. One-Dimensional Motion with Constant Acceleration. Freely Falling Objects. Kinematic Equations Derived from Calculus. General Problem-Solving Strategy.
- Vectors: Coordinate Systems. Vector and Scalar Quantities. Some Properties of Vectors. Components of a Vector and Unit Vectors.
- Motion in Two Dimensions: The Position, Velocity, and Acceleration Vectors. Two-Dimensional Motion with Constant Acceleration. Projectile Motion. Uniform Circular Motion. Tangential and Radial Acceleration. Relative Velocity and Relative Acceleration.
- The Laws of Motion: The Concept of Force. Newton's First Law and Inertial Frames. Mass. Newton's Second Law. The Gravitational Force and Weight. Newton's Third Law. Some Applications of Newton's Laws. Forces of Friction. Circular Motion and Other Applications of Newton's Laws. Newton's Second Law Applied to Uniform Circular Motion.
- Energy and Energy Transfer: Systems and Environments. Work Done by a Constant Force. The Scalar Product of Two Vectors. Work Done by a Varying Force. Kinetic Energy and the Work-Kinetic Energy Theorem. The Non-Isolated System--Conservation of Energy. Situations Involving Kinetic Friction. Power. Energy and the Automobile.
- Potential Energy: Potential Energy of a System. The Isolated System--Conservation of Mechanical Energy. Conservative and Nonconservative Forces. Changes in Mechanical Energy for Nonconservative Forces. Relationship Between Conservative Forces and Potential Energy. Energy Diagrams and Equilibrium of a System.
- Linear Momentum and Collisions: Linear Momentum and Its Conservation. Impulse and Momentum. Collisions in One Dimension. Two-Dimensional Collisions. The Center of Mass.
- Rotation of a Rigid Object about a Fixed Axis: Angular Position, Velocity, and Acceleration.
- Rotational Kinematics: Rotational Motion with Constant Angular Acceleration. Angular and Linear Quantities. Rotational Kinetic Energy. Calculation of Moments of Inertia. Torque. Relationship Between Torque and Angular Acceleration. Work, Power, and Energy in Rotational Motion. Rolling Motion of a Rigid Object.
- Angular Momentum: The Vector Product and Torque. Angular Momentum. Angular Momentum of a Rotating Rigid Object. Conservation of Angular Momentum. Angular Momentum as a Fundamental Quantity.
- Static Equilibrium and Elasticity: The Conditions for Equilibrium. Examples of Rigid Objects in Static Equilibrium.

Class Schedule: Meets for 3 hours of lecture and 1 hour of discussion each week for 10 weeks.

Computer Usage: none

Laboratory Projects: none

Professional Component

Contributes to Mathematics and Basic Science Courses.

Design Content Description

Approach:

Lectures: 0%

Laboratory Portion: 0%**Grading Criteria:**

- Quizzes: 35%
- Midterm: 25%
- Final: 40%
- Total: 100%

Estimated ABET Category Content:

Mathematics and Basic Science: 4.0 credit units

Computing: 0.0 credit units

Engineering Topics: 0.0 credit units

Engineering Science: 0.0 credit units

Engineering Design: 0.0 credit units

Prepared By: Robert Cassidy **Date:** December 3, 2012

Senate Approved: February 3, 2011

Approved Effective: 2011 Fall Qtr

PHYSICS 7LC CLASSICAL PHYSICS LABORATORY

(Required for AE, BME, BMEP, CE, CSE, ChE, CpE, EE, EnE, GE, ME and MSE.)

Catalog Data: **PHYSICS 7LC Classical Physics Laboratory (Credit Units: 1)** Experiments related to lecture topics in Physics 7C. Corequisite: PHYSICS 7C. PHYSICS 7LC and PHYSICS 7LA-LB may not both be taken for credit. (Design units: 0)

Required Textbook: Roger A. Freedman, *University Physics Volumes 1 & 2 and MasteringPhysics with Pearson eText Student Access Code Card (13th Edition)*. 13th Edition, Addison-Wesley, 2011, ISBN-13 978-0321788603.

Recommended Textbook: None

References: None

Coordinator:

Relationship to Student Outcomes

No student outcomes specified.

Course Learning Outcomes. Students will:

Prerequisites by Topic

Lecture Topics:

- Newton's laws of motion
- Energy and energy conservation
- Momentum and collisions
- Rotational kinematics and dynamics
- Angular momentum
- Equilibrium
- Universal gravitation

Class Schedule: Meets for 2 hours of laboratory each week for 10 weeks.

Computer Usage:

Laboratory Projects:

Professional Component

Design Content Description

Approach:

Lectures:

Laboratory Portion:

Grading Criteria:

Estimated ABET Category Content:

Mathematics and Basic Science: 1.0 credit units

Computing: 0.0 credit units

Engineering Topics: 0.0 credit units

Engineering Science: 0.0 credit units

Engineering Design: 0.0 credit units

Prepared By: Robert Cassidy **Date:** December 4, 2012

Senate Approved: February 7, 2008

Approved Effective: 2008 Fall Qtr

PHYSICS 7D CLASSICAL PHYSICS

(Required for AE, BME, BMEP, CE, CSE, ChE, CpE, EE, EnE, ME and MSE.)

Catalog Data: **PHYSICS 7D Classical Physics (Credit Units: 4)** Electricity and magnetism. Corequisite: PHYSICS 7LD and MATH 2D. Prerequisite: (PHYSICS 7C or PHYSICS 7B) and MATH 2B. (Design units: 0)

Required Textbook: Roger A. Freedman, *University Physics Volumes 1 & 2 and MasteringPhysics with Pearson eText Student Access Code Card (13th Edition)*. 13th Edition, Addison-Wesley, 2011, ISBN-13 978-0321788603.

Recommended Textbook: None

References: None

Coordinator:

Relationship to Student Outcomes

No student outcomes specified.

Course Learning Outcomes. Students will:

Prerequisites by Topic

Lecture Topics:

- Electric Charge and Electric Fields
- Gauss's Law
- Electric Potential
- Capacitance and Dielectrics
- Current, Resistance and EMF
- DC Circuits
- Magnetic fields and forces
- Electromagnetic induction
- Inductance
- Faraday Law
- Inductance
- AC currents
- e-m waves

Class Schedule: Meets for 3 hours of lecture and 1 hour of discussion each week for 10 weeks.

Computer Usage: none

Laboratory Projects: none

Professional Component

Contributes toward Mathematics and Basic Science

Design Content Description***Approach:******Lectures:*** 0%***Laboratory Portion:*** 0%**Grading Criteria:**

- Homework: 10%
- Quizzes: 10%
- Midterm: 35%
- Final: 45%
- Total: 100%

Estimated ABET Category Content:

Mathematics and Basic Science: 4.0 credit units

Computing: 0.0 credit units

Engineering Topics: 0.0 credit units

Engineering Science: 0.0 credit units

Engineering Design: 0.0 credit units

Prepared By: Robert Cassidy **Date:** December 4, 2012**Senate Approved:** February 7, 2008**Approved Effective:** 2008 Fall Qtr

PHYSICS 7LD CLASSICAL PHYSICS LABORATORY

(Required for AE, BME, BMEP, CE, CSE, ChE, CpE, EE, EnE, ME and MSE.)

Catalog Data: **PHYSICS 7LD Classical Physics Laboratory (Credit Units: 1)** Electricity and magnetism.
Corequisite: PHYSICS 7D. (Design units: 0)

Required Textbook: Lillian C. McDermott, *Tutorials in Introductory Physics*. Edition, Prentice Hall College Div, 2001, ISBN-13 978-0130653642.
Lillian C. McDermott, *Tutorials In Introductory Physics and Homework Package*. 1st Edition, Addison-Wesley, 2001, ISBN-13 978-0130970695.

Recommended Textbook: None

References: Also required available only at UCI Bookstore: UCI Physics 7LD Laboratory Manual by Michael Dennin, Jonathan Feng, and Riley Newman

Coordinator:

Relationship to Student Outcomes

No student outcomes specified.

Course Learning Outcomes. Students will:

Prerequisites by Topic

Lecture Topics:

- Drawing field lines
- Flux and Gauss' Law
- Electric Potential
- Capacitance
- Circuits and Midterm Review
- Model for circuits
- RC circuits
- Magnetic Fields
- Lenz's Law and Faraday's Law

Class Schedule: Meets for 2 hours of laboratory each week for 10 weeks.

Computer Usage:

Laboratory Projects:

Professional Component

Contributes toward Mathematics and Basic Science.

Design Content Description

Approach:

Lectures: 0%

Laboratory Portion: 0%

Grading Criteria:

- Attendance: 70%
- Final: 30%
- Total: 100%

Estimated ABET Category Content:

Mathematics and Basic Science: 1.0 credit units

Computing: 0.0 credit units

Engineering Topics: 0.0 credit units

Engineering Science: 0.0 credit units

Engineering Design: 0.0 credit units

Prepared By: Robert Cassidy **Date:** July 11, 2012

Senate Approved: February 7, 2008

Approved Effective: 2008 Fall Qtr

STATS 67 INTRODUCTION TO PROBABILITY AND STATISTICS FOR COMPUTER SCIENCE

(Required for CSE.)

Catalog Data: **STATS 67 Introduction to Probability and Statistics for Computer Science (Credit Units: 4)**
Introductory course focusing on basic concepts in probability and statistics with discussion of applications to computer science. Prerequisite: MATH 2B and I&C SCI 6D. No credit for STATS 7 or MGMT 7 if taken after STATS 67. (Design units: 0)

Required Textbook: John A. Rice, *Mathematical Statistics and Data Analysis (with CD Data Sets) (Duxbury Advanced)*. 3rd Edition, Duxbury Press, 2006, ISBN-13 978-0534399429.

Recommended Textbook: None

References: Lecture Notes

Coordinator: Michael J Phelan and Yaming Yu

Relationship to Student Outcomes
No student outcomes specified.

Course Learning Outcomes. Students will:

1. Have knowledge of basic probability distributions
2. Perform hypothesis testing
3. Performance estimation of parameters

Prerequisites by Topic
Calculus - differentiation & integration

Lecture Topics:

- Orientation, Lotteries and Histograms with R (Week 1)
- Sample Spaces, Probability, Combinatorial Probability (Week 2)
- Conditional Probability, Independence, Random Variables (Week 3)
- Distributions (Week 4)
- Poisson Law, Expected Value, Variance, SD (Week 5)
- Uniform Distribution, Random Number Generators, Exponential Distribution (Week 6)
- Normal Model (Week 7)
- Binary Search Trees, Random Search Trees, Tree Shape and Balance (Week 8)
- Joint Distributions, Estimating Multinomial Probabilities, Bootstrap (Week 9)
- Independence, Conditional Distributions, Limit Theorems (LLN & CLT)(Week 10)

Class Schedule: Meets for 3 hours of lecture and 2 hours of discussion each week for 10 weeks.

Computer Usage:

Laboratory Projects:

Professional Component

Contributes toward Mathematics and Basic Science.

Design Content Description

Approach:

Lectures:

Laboratory Portion:

Grading Criteria:

- Homework: 10%
- Midterm: 60% (30% each)
- Final: 30%
- Total: 100%

Estimated ABET Category Content:

Mathematics and Basic Science: 4.0 credit units

Computing: 0.0 credit units

Engineering Topics: 0.0 credit units

Engineering Science: 0.0 credit units

Engineering Design: 0.0 credit units

Prepared By: Robert Cassidy **Date:** July 11, 2012

Senate Approved: January 11, 2011

Approved Effective: 2011 Fall Qtr

ABET
Self-Study Report
for
COMPUTER SCIENCE AND ENGINEERING

Appendix B – Faculty Vitae

**Donald Bren School of Information and Computer Sciences
and
The Henry Samueli School of Engineering
University of California, Irvine
Irvine, CA 92697**

June 2013

CONFIDENTIAL

The information supplied in this Self-Study Report is for the confidential use of ABET and its authorized agents, and will not be disclosed without authorization of the institution concerned, except for summary data not identifiable to a specific institution.

NAME – Mohammad Abdullah Al Faruque

EDUCATION

Ph.D., Computer Science and Engineering, University of Karlsruhe, Germany, 2009
M.S.c., Computer Science and Engineering, Aachen Technical University, Germany, 2004
B.S.c., Computer Science and Engineering, Bangladesh University of Engineering and Technology, Bangladesh, 2002

ACADEMIC EXPERIENCE

UC Irvine, Assistant Professor, 2012 – Present
Karlsruhe Institute of Technology, Group leader and Chair for Embedded Systems, 2009-2010
University of Karlsruhe, Scientific Co-worker and Chair for Embedded Systems, 2004-2009
Aachen Technical University, Germany, Student Research Worker, 2002-2004

NON-ACADEMIC EXPERIENCE

Siemens Corporate Research, Princeton, NJ, Research Scientist, 2010-2012

CERTIFICATIONS AND PROFESSIONAL REGISTRATIONS - none

CURRENT MEMBERSHIPS IN PROFESSIONAL ORGANIZATIONS

IEEE, Member
ACM, Member

HONORS AND AWARDS

IEEE/ACM William J. McCalla ICCAD Best Paper Award, 2009
HiPEAC Paper Award, 2008
Best Paper Award Nomination for DAC, 2005
RWTH Masters Scholarship for class performance, 2003
BUET Honors' List, 2002
BUET Merit Scholarship for class performance, 1996
Prime Minister's Merit Award in secondary school certificate examination, 1993

SERVICE ACTIVITIES within UNIVERSITY OF CALIFORNIA - none

SERVICE ACTIVITIES outside UNIVERSITY OF CALIFORNIA

Reviewer for funding organizations
National Science Foundation Review, 2011-present
Registration Chair IEEE 7th International Symposium on Networks-on-Chip (NOCS 2013)
Track Chair IEEE 25th Conference on VLSI Design 2012
Technical program committee: SOC 2010/2011/2012, ASAP 2010/2011/2012, RTAS 2010, VLSI-SOC 2010

SELECTED PUBLICATIONS AND PRESENTATIONS from the past five years:

Journal Publications:

- J1. M. A. Al Faruque, T. Ebi, J. Henkel: "*AdNoC: Runtime Adaptive Network-on-Chip Architecture*", IEEE Transactions on Very Large Scale Integration Systems (TVLSI'10), Volume pp, Issue 99, Pages 1-13, 2010.
- J2. M. A. Al Faruque, J. Jahn, T. Ebi, J. Henkel: "*Runtime Thermal Management Using Software Agents for Multi/Many-Core Architectures*", in the special issue on Post-silicon Calibration and Repair, IEEE Design & Test (D&T'10), Volume 27, Issue 6, Pages 58-68, Nov.-Dec 2010.
- J3. M. A. Al Faruque, J. Henkel: "*QoS-Supported On-chip Communication for Multi-Processors*", in International Journal of Parallel Programming (IJPP'08), Volume 36, Number 1, Pages 114-139, February 2008.

Major Conference Publications:

- C1. M. A. Al Faruque, L Dalloro, S. Zhou, H. Ludwig, G. Lo: "*Managing Residential Level EV Charging Using Network-as-Automation Platform (NAP) Technology*", in IEEE International Electric Vehicle Conference (IEVC'12), South Carolina, USA, Pages: 1-6, March, 2012.
- C2. M. A. Al Faruque, A. M. Canedo: "*Intelligent and Collaborative Embedded Computing in Automation Engineering*", in IEEE/ACM Design Automation and Test in Europe (DATE'12), Dresden, Germany, Pages: 344-355, March, 2012.
- C3. A. M. Canedo, M. A. Al Faruque: "*Towards Parallel Execution of IEC 61131 Industrial Cyber-Physical Systems Applications*", in IEEE/ACM Design Automation and Test in Europe (DATE'12), Dresden, Germany, Pages: 554-557, March, 2012.
- C4. J. Jahn, M. A. Al Faruque, J. Henkel: "*CARAT: Context-Aware Runtime Adaptive Task Migration for Multi Core Architectures*", in IEEE/ACM Design Automation and Test in Europe (DATE'11), Grenoble, France, Pages: 515-520, March, 2011.
- C5. F. Hameed, M. A. Al Faruque, J. Henkel: "*Dynamic Thermal Management in 3D Multi-Core Architecture Through Run-time Adaptation*", in IEEE/ACM Design Automation and Test in Europe (DATE'11), Grenoble, France, Pages: 299-304, March, 2011.
- C7. T. Ebi, M. A. Al Faruque, J. Henkel: "*-TAPE: Thermal-Aware Agent-Based Power Economy for Multi/Many-Core Architectures*", in IEEE/ACM International Conference on Computer-Aided Design (ICCAD'09), San Jose, California, USA, Pages: 302-309, November, 2009 (*Received the IEEE/ACM WILLIAM J. MCCALLA ICCAD BEST PAPER AWARD 2009*).
- C8. M. A. Al Faruque, T. Ebi, J. Henkel: "*-Configurable Links for Runtime Adaptive On-chip Communication*", in IEEE/ACM, Design Automation and Test in Europe (DATE'09), Nice, France, Pages: 256-261, April, 2009.
- C10. M. A. Al Faruque, R. Krist, J. Henkel: "*ADAM: Run-time Agent-based Distributed Application Mapping for on-chip Communication*", in 45th IEEE/ACM/EDA Design Automation Conference (DAC'08), Anaheim, California, USA, Pages: 760-765, June 2008 (*Received a European Network of Excellence on High Performance and Embedded Architecture and Compilation (HiPEAC) Paper Award.*)

PROFESSIONAL DEVELOPMENT ACTIVITIES - none

NAME - Shannon L. Alfaro

EDUCATION

M.S., Computer Science, University of California, Irvine, 2002

B.S., Computer Science, University of California, Riverside, 1999

ACADEMIC EXPERIENCE

UC Irvine, Lecturer, 2003-present, Full-time

COURSES

Honors Introduction to Computer Science II, ICS H22

Introduction to Computer Science II, ICS 22

Fundamental Data Structures, ICS 23

Introduction to Computer Organization, ICS51

Logic Design Laboratory, ICS 155A

Programming Languages, CS 141

Compilers & Interpreters, CS 142A

Language Processor Construction, CS142B

Introduction to Operating Systems, CS 143A

Communication Skills for Computer Scientists. Critical Writing, ICS 139W

Systems Engineering & Technical Communication, CSE 90

NON-ACADEMIC EXPERIENCE

Optivus Proton Therapy Inc, Software Engineer, Designed and developed code to , 1999-2000

Optivus Proton Therapy Inc, Intern, GUI development for Proton Center Maintenance Personnel, Summer 1998

CERTIFICATIONS AND PROFESSIONAL REGISTRATIONS - none

CURRENT MEMBERSHIPS IN PROFESSIONAL ORGANIZATIONS -

Association for Computing Machinery, SIGCSE- 2005, 2011

HONORS AND AWARDS -

Excellence in Teaching Award, Lecturer, Division of Undergraduate Education, 2004

SERVICE ACTIVITIES within UNIVERSITY OF CALIFORNIA

Member, UC Irvine Lecturer Review Committee, 2009-2011

Member, Committee on Introductory Courses, 2006

SERVICE ACTIVITIES outside UNIVERSITY OF CALIFORNIA
Presenter, Sally Ride Festivals, 2004,2005

NAME - Animashree Anandkumar

EDUCATION

Ph.D., Electrical Engineering, Cornell University, 2009

B. Tech, Electrical Engineering, Indian Institute of Technology Madras, 2004

ACADEMIC EXPERIENCE

UC Irvine, Assistant Professor, 2010-Present

Laboratory of Information & Decision Systems, Post-doctoral Associate, 2009-2010

Laboratory of Information & Decision Systems, Visiting Graduate Student, 2009-2009

IBM Watson Research, Graduate Research Intern, 2007-2008

NON-ACADEMIC EXPERIENCE - none

CERTIFICATIONS AND PROFESSIONAL REGISTRATIONS - none

CURRENT MEMBERSHIPS IN PROFESSIONAL ORGANIZATIONS

ACM, Member, 2009-present

IEEE, Member, 2009-present

HONORS AND AWARDS

NSF Career Award, 2013

2009 Innovation achievement award, IBM Watson Research, 2009

ACM Sigmetrics 2009 Best Thesis Award, ACM, 2009

IBM Fran Allen PhD fellowship, IBM, 2008-2009

IEEE Signal Processing Society (SPS) 2008 Young Author award, IEEE, 2009

Anita-Borg Google Scholarship finalist, 2007-2008

Student Paper Award, International Conference on Acoustic, Speech & Signal Processing,
2006

Summer Research Fellow, Jawaharlal Nehru Center for Advanced Scientific Research, India,
2003

SERVICE ACTIVITIES within UNIVERSITY OF CALIFORNIA - none

SERVICE ACTIVITIES outside UNIVERSITY OF CALIFORNIA

technical program committee, ACM MOBIHOC 2011, 2011

technical program committee, IEEE ICC 2011, 2011

technical program committee, IEEE INFOCOM 2011, 2011

technical program committee, IEEE PIMRC 2010, 2010

technical program committee, MILCOM 2010, 2010

Speaker, CRA-W Grad Cohort 2008, 2008

SELECTED PUBLICATIONS AND PRESENTATIONS from the past five years

Articles, Journal

Learning Gaussian Tree Models: Analysis of Error Exponents and Extremal Structures. Tan, V., Anandkumar, A., Willsky, A. *IEEE Tran. on Signal Processing*, 58(5), 2701-2714. (2010).

Energy Scaling Laws for Distributed Inference in Random Networks. Anandkumar, A., Yukich, J. E., Tong, L., Swami, A. *IEEE J. Sel. Area Comm*, 27(7), 1203-1217. (2009).

Detection of Gauss-Markov Random Fields with Nearest neighbor Dependency. Anandkumar, A., Tong, L., Swami, A. *IEEE Tran. Information Theory*, 55(2), 816-827. (2009).

Optimal Node Density for Detection in Energy Constrained Random Networks. Anandkumar, A., Tong, L., Swami, A. *IEEE Tran. Signal Proc*, 56(10), 5232-5245. (2008).

Distributed Estimation Via Random Access. Anandkumar, A., Tong, L., Swami, A. *IEEE Tran. Information Theory*, 54(7), 3175-3181. (2008).

Type-Based Random Access for Distributed Detection over Multiaccess Fading Channels. Anandkumar, A., Tong, L. *IEEE Tran. Signal Proc*, 55(10), 5032-5043. (2007).

Conference/Workshop/Symposium Proceedings

Learning Latent Tree Graphical Models. Choi, M. J., Tan, V., Anandkumar, A., Willsky, A. In *Proc. of Allerton Conf. on Communication, Control and Computing*. Monticello, USA. (2010).

Learning Markov Forest Models: Analysis of Error Rates. Tan, V., Anandkumar, A., Willsky, A. In *Proc. of Allerton Conf. on Communication, Control and Computing*. Monticello, USA. (2010).

Error Exponents for Composite Hypothesis Testing of Markov Forest Distributions. Tan, V., Anandkumar, A., Willsky, A. In *Proc. of IEEE ISIT*. Austin, USA. (2010).

Feedback Message Passing for Inference in Gaussian Graphical Models. Liu, Y., Chandrasekaran, V., Anandkumar, A., Willsky, A. In *Proc. of IEEE ISIT*. Austin, USA. (2010).

Scaling Laws for Random Spatial Graphical Models. Anandkumar, A., Yukich, J. E., Willsky, A. *Proc. of IEEE ISIT*, Austin, USA. (2010).

Opportunistic Spectrum Access with Multiple Users: Learning under Competition. Anandkumar, A., Michael, N., Tang, A. K. In *Proc. of IEEE INFOCOM*. San Deigo, USA. (2010).

How do the Structure and the Parameters of Tree Gaussian Graphical Models Affect Structure Learning?. Tan, V., Anandkumar, A., Willsky, A. S. In *Proc. of Allerton Conf. on Communication, Control and Computing*. Monticello, USA. (2009).

Detection Error Exponent for Spatially Dependent Samples in Random Networks. Anandkumar, A., Tong, L., Willsky, A. In *Proc. of IEEE ISIT*. Seoul, S. Korea. (2009).

PROFESSIONAL DEVELOPMENT ACTIVITIES - none

NAME - Ender Ayanoglu

EDUCATION

Ph.D., Electrical Engineering, Stanford University, 1986

M.S., Electrical Engineering, Stanford University, 1982

B.S., Electrical Engineering, Middle East Technical University, 1980

ACADEMIC EXPERIENCE

UC Irvine, Professor, 2002-Present

Bilkent University, Visiting Professor, 1990-1991

NON-ACADEMIC EXPERIENCE

Cisco Systems, Inc., System Architect, 1999-2002

Bell Laboratories (AT&T and Lucent), Member of Technical Staff, 1986-1999

CERTIFICATIONS AND PROFESSIONAL REGISTRATIONS - none

CURRENT MEMBERSHIPS IN PROFESSIONAL ORGANIZATIONS

Institute of Electrical and Electronics Engineers (IEEE), 1982-Present

HONORS AND AWARDS

IEEE Fellow, 1998

IEEE Communications Society Best Tutorial Paper Award, 1997

IEEE Stephen O. Rice Prize Paper Award, 1995

SERVICE ACTIVITIES within UNIVERSITY OF CALIFORNIA

Member, UC Irvine Committee on Computing, Research, and Libraries, 2007 - 2009

SERVICE ACTIVITIES outside UNIVERSITY OF CALIFORNIA

IEEE Communications Society, 2004-present

IEEE Information Theory Society, 2004-present

Editor in Chief, IEEE Transactions on Communications, 2004-2007

SELECTED PUBLICATIONS AND PRESENTATIONS from the past five years

Articles, Journal

Analysis of the 802.11e Enhanced Distributed Channel Access Function. Inan, I., Keceli, F., Ayanoglu, E. *IEEE Transactions on Communications*, 57, 1753-1764. (2009).

Bit-Interleaved Coded Multiple Beamforming with Imperfect CSIT. Sengul, E., Park, H. J., Ayanoglu, E. *IEEE Transactions on Communications*, 57, 1505-1513. (2009).

A Novel Maximum Likelihood Decoding Algorithm for Orthogonal Space-Time Block Codes. Azzam, L., Ayanoglu, E. *IEEE Transactions on Communications*, 57, 606-609. (2009).

Bit-Interleaved Coded Multiple Beamforming. Akay, E., Sengul, E., Ayanoglu, E. *IEEE Transactions on Communications*, 55, 1805-1811. (2007).

A MIMO System With Multifunctional Reconfigurable Antennas. Cetiner, B. A., Akay, E., Sengul, E., Ayanoglu, E. *IEEE Antennas and Wireless Propagation Letters*, 5, 462-466. (2006).

Achieving Full Frequency and Space Diversity in Wireless Systems via BICM, OFDM, STBC and Viterbi Decoding. Akay, E., Ayanoglu, E. *IEEE Transactions on Communications*, 54, 2164-2172. (2006).

Diversity Analysis of Single and Multiple Beamforming. Sengul, E., Akay, E., Ayanoglu, E. *IEEE Transactions on Communications*, 54, 990-993. (2006).
Conference/Workshop/Symposium Proceedings

Achieving Fair TCP Access in the IEEE 802.11 Infrastructure Basic Service Set. Keceli, F., Inan, I., Ayanoglu, E. In *Proc. IEEE ICC 2007*. (pp. 2637-2643). Beijing, China. (2008).

Maximum Likelihood Detection of Quasi-Orthogonal Space-Time Block Codes: Analysis and Simplification. Azzam, L., Ayanoglu, E. In *Proc. IEEE ICC 2007*. (pp. 3948-3954). Beijing, China. (2008).

Weighted Fair Uplink/Downlink Access Provisioning in IEEE 802.11e WLANs. Keceli, F., Inan, I., Ayanoglu, E. In *Proc. IEEE ICC 2007*. (pp. 2473-2479). Beijing, China. (2008).

Reduction of ML Decoding Complexity for MIMO Sphere Decoding, QOSTBC, and OSTBC. Azzam, L., Ayanoglu, E. *2008 UCSD Information Theory and Applications Workshop*, La Jolla, CA. (2008).

Saturation Throughput Analysis of the 802.11e Enhanced Distributed Channel Access Function. Inan, I., Keceli, F., Ayanoglu, E. In *Proc. IEEE ICC 2007*. (pp. 409-414). Glasgow, Scotland, UK. (2007).

TCP ACK Congestion Control and Filtering for Fairness Provision in the Uplink of IEEE 802.11 Infrastructure Basic Service Set. Keceli, F., Inan, I., Ayanoglu, E. In *Proc. IEEE ICC 2007*. (pp. 4512-4517). Glasgow, Scotland, UK. (2007).

An Adaptive Multimedia QoS Scheduler for 802.11e Wireless LANs. Inan, I., Keceli, F., Ayanoglu, E. In *Proc. IEEE ICC 2006*. (pp. 5263-5270). Istanbul, Turkey. (2006).

Adaptive Modulation and Coding for Bit Interleaved Coded Multiple Beamforming. Sengul, E., Akay, E., Ayanoglu, E. In *Proc. IEEE VTC Spring 2006*. Vol. 5, (pp. 2088-2092). Melbourne, Australia. (2006).

PROFESSIONAL DEVELOPMENT ACTIVITIES - none

NAME - Mark Bachman

EDUCATION

Ph.D., Experimental Particle Physics, University of Texas, 1994
B.S., Physics, University of Texas, 1985

ACADEMIC EXPERIENCE

UC Irvine, Assistant Professor, 2009-present
UC Irvine, Associate Adjunct Professor, 2005-2009
UC Irvine, Assistant Adjunct Professor, 1999-2005
UC Irvine, Assistant Professional Research, 1997-1999
Assistant Research Physicist, Department of Electrical Engineering, UC Irvine
MEMS and integrated microsystems, Nanotechnology, 1998–2001
Assistant Research Physicist, Department of Physics, UC Irvine
Particle beam simulation for rare muon decays, Experimental high energy physics,
1997–1998
Postdoctoral Research Associate, Department of Physics, UC Irvine
Rare kaon decay, Experimental high energy physics, 1994–1997
Research Assistant, University of Texas at Austin
Pion production from proton-neutron scattering, Experimental nuclear physics,
1986–1994

NON-ACADEMIC EXPERIENCE - none

CERTIFICATIONS AND PROFESSIONAL REGISTRATIONS - none

CURRENT MEMBERSHIPS IN PROFESSIONAL ORGANIZATIONS

American Physics Society
Materials Research Society
Member, Center for Hearing Research at UC Irvine, 2006-present

HONORS AND AWARDS

Chancellor's Award for Excellence in Fostering Undergraduate Research, University of California Irvine, 2009
UCI Innovation Award, UC Irvine (for outstanding invention portfolio at UCI), 2005
Outstanding UCI Engineering Professor in Teaching (adjunct series), 2003
Outstanding Doctoral Dissertation at the University of Texas at Austin, 1994
Best Dissertation Award in Physical Science and Engineering, University of Texas, Austin, 1993

SERVICE ACTIVITIES within UNIVERSITY OF CALIFORNIA

School of Engineering Undergraduate Steering Committee, 2010
EECS Department Undergraduate Curriculum Committee, 2010
EECS Department Undergraduate Advisor, 2010
OCTANe Biomedical Leadership Council, 2009-2010
School of Engineering Diversity Committee, 2009
Organizer, Second International Symposium on LifeChips at UC Irvine, 2009

Organizer, International Symposium on LifeChips at UC Irvine, 2006
Co-Founder, LifeChips program and center at UC Irvine, 2006

SERVICE ACTIVITIES outside UNIVERSITY OF CALIFORNIA

Reviewer for IEEE Trans. Biomedical Eng.; Biomedical Microdevices, 2006-present
Reviewer for UC Discovery Grants, VICI grants (Netherlands), 2002-present
Reviewer, Extramural Funding, IEEE Sensors, Sensors and Actuators B, UC Discovery Grants, 2002-present
Referee for Kentucky Science and Engineering Foundation, 2009

SELECTED PUBLICATIONS AND PRESENTATIONS from the past five years

“Ferromagnetic Micropallets for Magnetic Capture of Single Adherent Cells.” N. M. Gunn, R. Chang, T. Westerhof, G.-P. Li, M. Bachman, E. L. Nelson, *Langmuir*, 2010.

“Fabrication and biological evaluation of uniform extracellular matrix coatings on discontinuous photolithography generated micropallet arrays.” Nicholas M. Gunn, Mark Bachman, Guann-Pyng Li and Edward L. Nelson, *Biomed Mater Res A*. 2010, 95(2):401-12.

“Electrochemical patterning of transparent single-walled carbon nanotube films on plastic substrates.” Han KN, Li CA, Han B, Bui MP, Pham XH, Choo J, Bachman M, Li GP, Seong GH., *Langmuir*. 2010 Jun 1;26 (11):9136-41.

“A Novel Membrane Process for RF MEMS Switches.” Ming-Jer Lee, Yang Zhang, Changwon Jung, Mark Bachman, Franco De Flaviis, and G.P. Li, *Journal of Microelectromechanical Systems*, 19 (3), 715-717 (2010).

Presentations

“Web Enabled Devices and Instruments”, Mark Bachman, Invited Presentation, Bavaria-California Technology Workshop (BaCaTec), Munich, Germany, September 2010.

“Microfluidic Devices for Cell Analysis”, Mark Bachman, Invited Presentation, 3rd International Symposium on Integrated Nano-Bio Materials and Devices, Dankook University, Cheonan Campus, S. Korea, November 2009.

“LifeChips”, Mark Bachman, Invited Presentation, Korean Materials Research Society Fall Meeting. Pohang City, November 2009.

“Fabrication of Polymer Microarrays”, Mark Bachman, Invited Presentation, 2nd Annual International Conference from Nanoparticles and Nanomaterials to Nanodevices and Nanosystems (IC4N), Rhodes, Greece. June 2009.

“Micropallet arrays for sorting adherent cells and colonies”, Mark Bachman, Invited Presentation, The Cancer Institute Hospital of JFCR, Ariake, Tokyo, Japan. May 2009.

“Engineering the Microworld”, Mark Bachman, Invited Presentation, Toyohashi University of Technology, Toyohashi, Japan. May 2009.

PROFESSIONAL DEVELOPMENT ACTIVITIES - none

NAME - Nader Bagherzadeh

EDUCATION

Ph.D., Computer Engineering, The University of Texas at Austin, 1987
M.S., Electrical Engineering, The University of Texas at Austin, 1979
B.S., Electrical Engineering, The University of Texas at Austin, 1977

ACADEMIC EXPERIENCE

Professor, Department of EECS, UCI, 2003-present
Professor and Chair, Department of ECE, UCI, 1999-2002
Associate Professor, ECE, UCI, 1993-1998
Assistant Professor, ECE, UCI, 1988-1993

NON-ACADEMIC EXPERIENCE

AT&T Bell Labs, Member of Tech. Staff, 1980-1985
MCC and Burroughs Austin Research Center, RA, 1985-1987

CERTIFICATIONS AND PROFESSIONAL REGISTRATIONS - none

CURRENT MEMBERSHIPS IN PROFESSIONAL ORGANIZATIONS

IEEE
AAAS

HONORS AND AWARDS

Best Paper award in IEEE Transactions on VLSI Design, 2001
Best Student Paper award in the proceedings of ASPDAC'02, 2002

SERVICE ACTIVITIES within UNIVERSITY OF CALIFORNIA

Member, EECS Engineering Building Committee, 2007-2008
Computer Science and Computer Engineering ABET Czar for EECS Department, 2006-08; 2011
Computer Science Engineering Lead faculty, 2010-2011
Member, EECS Award Committee, 2006-2008
Member, EECS Bylaws Committee, 2005-2008
Personal Ad-hoc Committee, 2006-2012

SERVICE ACTIVITIES outside UNIVERSITY OF CALIFORNIA

Program Committee Member, International Workshop on Applied Reconfigurable Computing
Editorial Review Board Member, International Journal of High Performance Systems
Technical Committee Member (Concurrent Systems), IFIP WG 10.3, 2001-2012
Editorial Review Board Member, International Journal of Computers and Electrical Engineering,
Editor, Journal of IEEE Transactions on Computers, 2003-2007

SELECTED PUBLICATIONS AND PRESENTATIONS from the past five years

W. Hu, C. Chen, J. Bahn, and N. Bagherzadeh, "Parallel Low-Density Parity Check Decoding on a Network-on-Chip-Based Multiprocessor Platform," *IET Computers & Digital Techniques*, Vol. 6, Issue. 2, pp. 86-94, 2012

C. Wang, W. Hu, S. Lee, and N. Bagherzadeh, "Area and Power-Efficient Innovative Congestion-Aware Network-on-Chip," *Journal of Systems Architecture*, Volume 57 Issue 1, Pages 24-38, January, 2011

A. Hatanaka and N. Bagherzadeh, "A Scheduling Approach for Distributed Resource Architectures with Scarce Communication," *Int. J. High Performance Systems Architecture*, Vol. 3, No. 1, Pages 12-22, 2011

Y. Yang, J. Bahn, S. Lee, J. Yang, and N. Bagherzadeh, "Parallel Processing for Block Ciphers on a Fault Tolerant Networked Processor Array," *International Journal of High Performance Systems Architecture*, Vol. 2, Nos. 3/4, 2010

J. Yang, S. Lee, C. Chen, and N. Bagherzadeh, "Ray Tracing on a Networked Processor Array," *International Journal of Electronics*, 2010, 97(10):1193-1205

S. E. Lee and N. Bagherzadeh, "Chapter 9: Energy/Power Issues in Network-on-Chip," *Network-on-Chips: Theory and Practice*, CRC Press, 2009, ISBN: 9781420079784

J. Bahn, S. Lee, Y. Yang, J. Yang, and N. Bagherzadeh, "On Design and Application Mapping of a Network-on-Chip (NoC) Architecture," *Parallel Processing Letters (PPL)*, Volume: 18, Issue: 2 (June 2008), pp. 239 - 255

J. Bahn and N. Bagherzadeh, "Design of Simulation and Analytical Models for a 2D-meshed Asymmetric Adaptive Router," *Computers & Digital Techniques, IET*, Volume 2, Issue 1, January 2008 Page(s):63 – 73.

PROFESSIONAL DEVELOPMENT ACTIVITIES - none

NAME - Pierre Baldi

EDUCATION

Ph.D, Mathematics, California Institute of Technology, 1986
M. S., Computer Science and Engineering, ENSTA, Paris, France, 1983
D.E.A., Mathematics, University of Paris, France, 1981
M.S. Psychology, University of Paris, France, 1980
M.S. Mathematics, University of Paris, 1980

ACADEMIC EXPERIENCE

UC Irvine, Professor, 2001-present, full-time
UC Irvine, Founding Director, Institute for Genomics and Bioinformatics, 2001- present
UC Irvine, Associate Professor, 1999-2001, full-time

NON-ACADEMIC EXPERIENCE

Jet Propulsion Laboratory, Member of the Technical Staff, 1988-1994
Net-ID, Inc. CEO, 1994-1999
Consulting for various companies in biotechnology and other industries, 1994-present

CERTIFICATIONS AND PROFESSIONAL REGISTRATIONS - none

CURRENT MEMBERSHIPS IN PROFESSIONAL ORGANIZATIONS

American Association for the Advancement of Science
American Chemical Society
Association for the Advancement of Artificial Intelligence
Association for Computing Machinery
Institute of Electrical and Electronic Engineers
International Society for Computational Biology

HONORS AND AWARDS

Fellow Association for Computing Machinery (2012)
Fellow Institute of Electrical and Electronic Engineers (2011)
Eduardo R. Caianiello Prize for Scientific Contributions to the Field of Neural Networks (2010)
Fellow American Association for the Advancement of Science (2008)
Fellow Association for the Advancement of Artificial Intelligence (2007)
Chancellor's Professor, UC Irvine, 2006-present
Lew Allen Award, Jet Propulsion Laboratory (1993)

SERVICE ACTIVITIES within UNIVERSITY OF CALIFORNIA

Director of the Biomedical Informatics Training Program, 2002-present
Member Conflict of Interest Oversight Committee
Member Privilege and Tenure Committee

SERVICE ACTIVITIES outside UNIVERSITY OF CALIFORNIA

Associated Editor, Neural Networks
Associate Editor, Data Mining and Knowledge Discovery
Member Editorial Board, International Journal for Bioinformatics Research and Applications
Member Editorial Board, Journal of Chemical Information and Modeling
Member Advisory Board, ACM SIGBioinformatics

SELECTED PUBLICATIONS AND PRESENTATIONS from the past five years:

- “ReactionPredictor: Prediction of Complex Chemical Reactions at the Mechanistic Level Using Machine Learning,” M. Kayala and P. Baldi, *Journal of Chemical Information and Modeling*. In press, 2012.
- “Deep Architectures for Protein Contact Map Prediction,” P. Di Lena, K. Nagata, and P. Baldi, *Bioinformatics*, 28, 2449-2457, (2012).
- “When is Chemical Similarity Significant? The Statistical Distribution of Chemical Similarity Scores and Its Extreme Values,” P. Baldi and R. Nasr, *Journal of Chemical Information and Modeling* **50**: 7, pp. 1205-1222, (2010).
- “Of Bits and Wows: A Bayesian Theory of Surprise with Applications to Attention,” P. Baldi and L. Itti, *Neural Networks*, **23**, pp. 649—666, (2010).
- “Computational and Single-Molecule Force Studies of a Macro Domain Protein Reveal a Key Molecular Determinant for Mechanical Stability,” D. Guzman, A. Randall, P. Baldi, and Z. Guan, *Proceedings of the National Academy of Sciences USA*, **107**, pp. 1989—1994, (2010).
- “A Prospective Analysis of the Antibody Response to Plasmodium falciparum Before and After a Malaria Season by Protein Microarray,” P. Crompton, M. Kayala, B. Traore, K. Kayentao, A. Onoiba, G. Weiss, D. Molina, C. Burk, M. Waisberg, A. Jasinskas, X. Tan, S. Doumbo, D. Doumtabe, Y. Kone, D. Narum, X. Liang, O. Doumbo, L. Miller, D. Doolan, P. Baldi, P. Felgner, S. Pierce, *Proceedings of the National Academy of Sciences USA*, **107**, 15, pp. 6958—6963, (2010).
- “Hashing algorithms and data structures for rapid searches of fingerprint vectors,” R. Nasr, D.S. Hirschberg, and P. Baldi, *Journal of Chemical Information and Modeling* **50**:8, pp.1358-1368, (2010).
- “No Electron Left-Behind: a Rule-Based Expert System to Predict Chemical Reactions and Reaction Mechanisms,” J. Chen and P. Baldi, *Journal of Chemical Information and Modeling*, **49**, 9, pp. 2034-2043, (2009).

NAME Lubomir Bic

EDUCATION

B.S. (n/a in Germany)
M.S. Technical University, Darmstadt, Germany, 1976
Ph.D. University of California, Irvine, 1979

ACADEMIC EXPERIENCE

1992—Present Professor, UCI
1986—1992 Associate Professor, UCI
1980—1986 Assistant Professor, UCI

NON-ACADEMIC EXPERIENCE

1979—1980 Researcher, SIEMENS AG, Munich, Germany
1978—1979 Lecturer, California State University, Fullerton

CERTIFICATIONS AND PROFESSIONAL REGISTRATIONS – none

HONORS AND AWARDS – none

SERVICE ACTIVITIES within UNIVERSITY OF CALIFORNIA—none

SERVICE ACTIVITIES outside UNIVERSITY OF CALIFORNIA

Colloquium; Qatar University, Doha, Qatar, May 2009
Colloquium; Javeriana University, Cali, Colombia, December 2009
Colloquium; Universidad San Francisco de Quito, Ecuador, February 2011
Colloquium; Universitas Indonesia, Jakarta, March 2012

SELECTED PUBLICATIONS AND PRESENTATIONS from the past five years:

“Efficient Global Pointers With Spontaneous Process Migration,” 16th Euromicro Conf. on Parallel Distributed and Network-based Processing (PDP 2008), Toulouse, France, February 2008 (with K. Noguchi, M. Dillencourt)
“Mobile Agents, DSM, Coordination, and Self-Migrating Threads: A Common Framework,” Int’l Conference on Data Networks, Communications, and Computers (DNCOCO’08), Bucharest, Romania, November 2008 (with M. Dillencourt)
“Distributed Individual-Based Simulation,” 15th Int’l European Conf. on Parallel and Distributed Computing (Euro-Par 2009), Delft, The Netherlands, August 2009 (with J. Liu, M. Dillencourt, D. Gillen, A. Lander)
“Gas-Leak Localization Using Distributed Ultrasonic Sensors,” Proc. SPIE, Vol. 7293, 72930Z, San Diego, March 2009 (with J. Huseynov, M. Dillencourt)
“Improving Accuracy Through Selective Doubly Compensated Summation,” Workshop on Language, Compiler, and Architecture Support for GPGPU, Bangalore, India, Jan 2010 (with M. Badin, M. Dillencourt, A. Nicolau)

“Automatic Resource Management in Multi-site Mobile Computing,” The 5th International Conference on Mobile Computing and Ubiquitous Networking (ICMU 2010), Seattle, WA, April 2010 (with Q. Shang, M. Fukuda, M. Dillencourt)

“Pretty Good Accuracy in Matrix Multiplication with GPUs,” 9th Int’l Symp. Parallel and Distributed Computing (ISPDC 2010), Istanbul, Turkey, July 2010 (with M. Badin, M. Dillencourt, A. Nicolau)

“JaMes: A Java-based system for Navigational Programming,” Int’l Conference on Computational Problem-Solving (ICCP), Chengdu, China, October 2011 (with Q. Shang, M. Fukuda, W. Zhang, M. Dillencourt)

“Improving the Accuracy of High Performance BLAS Implementations using Adaptive Blocked Algorithms. *The 23rd International Symposium on Computer Architecture and High Performance Computing*, Vitoria, Espirito Santo, Brazil, 2011 (with M. Badin, P. D’Alberto, M. Dillencourt, A. Nicolau)

“Improving Accuracy for Matrix Multiplications on GPUs,” *Scientific Programming*. Volume 19 (2011), 3-11 (with M. Badin, P. D’Alberto, M. Dillencourt, A. Nicolau)

“Incremental Parallelization with Migration,” IEEE International Symposium on Parallel and Distributed Processing with Applications, Madrid, Spain, July 2012 (with W. Zhang, L. Pan, M. Q. Shang, Dillencourt)

“Complete Automation of Future Grid for Optimal Real-Time Distribution of Renewables,” IEEE Int’l Conf. on Smart Grid Communication, Tainan City, Taiwan, Nov. 2012 (with K. Nakayama, K. Benson, M. Dillencourt)

PROFESSIONAL DEVELOPMENT ACTIVITIES

Member of Program Committee, Int’l Conf. on Web Information Systems (WISE), Poznan, Poland, 2009

NAME: Ozdal Boyraz

EDUCATION:

Ph.D., Electrical Engineering, University of Michigan, 2001
M.S., Electrical Engineering, University of Michigan, 1997
B.S., Electrical & Electronics Eng, Hacettepe University, 1993

ACADEMIC EXPERIENCE:

UC Irvine, Associate Professor, 2011-present
UC Irvine, Assistant Professor, 2005-2011

NON-ACADEMIC EXPERIENCE:

Xtera Communications Inc, Communications R&D Engineer, 2001-2003
Sa-San Inc, Biomedical Engineer, 1993-1995

CERTIFICATIONS AND PROFESSIONAL REGISTRATIONS - none

CURRENT MEMBERSHIPS IN PROFESSIONAL ORGANIZATIONS:

IEEE and IEEE-Photonics Society
OSA
SPIE

HONORS AND AWARDS:

2010 DARPA Young Faculty Award
Scientific American Top 50 Inventors and Contributors List, 2005
IEICE Electronics Society 2004 best paper award, 2005
Newport smart table grant, 2005
UCLA Chancellor's award for the best postdoctoral research scientist, UCLA, 2005
Rackham Travel Grant, 1999-2000
Full Scholarship from the Turkish Ministry of Education for Ph.D. degree in USA, 1997
Full Scholarship from the Turkish Ministry of Education for M.S. degree in USA, 1995

SERVICE ACTIVITIES within UNIVERSITY OF CALIFORNIA:

EECS Department Graduate admission committee
Service in school wide Ph.D. committee membership
Ph.D. Prelim exam committee

SERVICE ACTIVITIES outside UNIVERSITY OF CALIFORNIA:

OSA Integrated Optics Committee Member 2007-present
Committee member for 2007 OSA Frontier in optics conference, 2007-present
Conference chair, IEEE LEO Winter topical meeting, 2008
Reviewing: NSF panel reviewer and manuscript reviewing for journals such as Nature Photonics, IEEE Photonics Technology Letters, Journal of Lightwave Technology, Journal of Optical Society of America B, Applied Physics Letters and Optics Letters.
Symposium chair, IEEE/LEOS annual meeting, silicon photonics, 2006

SELECTED PUBLICATIONS AND PRESENTATIONS IN LAST FIVE YEARS:

Books and Book Chapters

B1. O. Boyraz "Silicon Raman lasers, amplifier and wavelength converter", in "Optical Interconnects: The Silicon Approach", L. Pavesi and G. Guillot (Eds.), Springer-Verlag,

B2. O. Boyraz “Pulse Shaping and Applications of Two-Photon Absorption” in “*Silicon Photonics for Telecommunications and Biomedicine*”, B. Jalali and S. Fathpour (Eds.), Taylor and Francis. First edition. ISBN: 978-1-4398063-7-1; Publish Date: April 15th, 2011.

Journals

J1. Q. Song, F. Qian, E. K. Tien, I. Tomov, J. Meyer, X. Z. Sang, and O. Boyraz, “Imaging by silicon on insulator waveguides,” *Appl. Phys. Lett.* 94, 231101 (2009)

J2. Feng Qian, Qi Song, En-kuang Tien, Salih K. Kalyoncu, Ozdal Boyraz, "Real-time optical imaging and tracking of micron-sized particles ", *Optics Communications*, 282, 4672-4675, December 2009

J3. En-Kuang Tien, Yuewang Huang, Shiming Gao, Qi Song, Feng Qian, Salih K. Kalyoncu, and Ozdal Boyraz, “Discrete Parametric Band Conversion in Silicon for Mid-Infrared Applications”, *Optics Express* 2010

J4. Song, Qi; Campione, Salvatore; Boyraz, Ozdal; Capolino, Filippo, “Silicon-based optical leaky wave antenna with narrow beam radiation,” *Optics Express*, pp. 8735-8749 (2011)

J5 Campione, Salvatore; Guclu, Caner; Song, Qi; Boyraz, Ozdal; Capolino, Filippo, “An optical leaky wave antenna with Si perturbations inside a resonator for enhanced optical control of the radiation,” *Optics Express*, Vol. 20 Issue 19, pp.21305-21317 (2012)

Conference Publications

C1. S. Campione, Q. Song, C. Guclu, O. Boyraz, and F. Capolino, “Control of the radiation of a silicon-based optical leaky wave antenna through optical pumping,” accepted for presentation at IEEE Photonics Conference (IPC), October 9-13, 2011, Arlington, VA, USA.

C2. S. Campione, F. Qian, O. Boyraz, and F. Capolino, “Erbium-based plasmonic-assisted vertical emitter,” accepted for presentation at IEEE Photonics Conference (IPC), October 9-13, 2011, Arlington, VA, USA.

C3. Kalyoncu S.K., Yuewang Huang, En-Kuang Tien, Adas E., Yildirim D., Boyraz O., "Noise Performance of Time Stretch System with Distributed and Discrete Amplifiers", *CLEO: 2011*.

C4. O. Boyraz, Y. Huang and X. Sang, "Silicon on sapphire and SOI photonic devices for mid-infrared and near-IR wavelengths", *Proc. SPIE 8431*, (2012); (Invited)

C5. Yuewang Huang, Salih K. Kalyoncu, Qi Song, and Ozdal Boyraz, "Silicon-on-sapphire Waveguides Design for Mid-IR Evanescent Field Absorption Gas Sensors," in *CLEO: 2012* paper JW2A.122.

C6. Salih K. Kalyoncu, Yuewang Huang, Qi Song and Ozdal Boyraz, “Fast arbitrary waveform generation by using digital micro mirror arrays”, *IEEE Photonics Conference*, TuK4, 2012.

Presentations and Public Lectures

P1. "Silicon based optical pulse shaping and characterization," *SPIE Photonics west conference*, January (2009). (Invited)

P2. “Silicon nonlinear optics,” *CMOS Photonics winter school*, Trento, ITALY, 2009 (Invited)

P3. “Mid-IR Silicon Photonic Devices,” *SPIE Photonics Europe*, 2010 (Invited)

PROFESSIONAL DEVELOPMENT ACTIVITIES:

Attend international conferences; deliver public lectures and visits to other universities.

NAME – Elaheh Bozorgzadeh

EDUCATION

University of California, Los Angeles (UCLA), PhD in computer science, 2003.

Northwestern University, M.S. in computer engineering, 2000.

Sharif University of Technology, B.S. in electrical engineering, 1998.

ACADEMIC EXPERIENCE

Associate Professor - University of California, Irvine, Computer science department, 2009-present

Assistant Professor - University of California, Irvine, Computer science department, 2003-2009

NON-ACADEMIC EXPERIENCE-None

CERTIFICATIONS AND PROFESSIONAL REGISTRATIONS – none

CURRENT MEMBERSHIPS IN PROFESSIONAL ORGANIZATIONS

ACM/IEEE member

Member of ACM computer society, Member of ACM/SIGDA

IEEE society of women engineers

Member of center for embedded computing system, University of California, Irvine.

HONORS AND AWARDS

NSF CAREER Award, 2008.

Best Paper Award at 2006 IEEE International Conference on Field-Programmable Logic and Applications (FPL 2006)

Best paper nominee at 2005 ACM/IEEE Design Automation Conference (DAC 2005)

UCI Faculty Career Development Award-2006.

SERVICE ACTIVITIES within UNIVERSITY OF CALIFORNIA-none

SERVICE ACTIVITIES outside UNIVERSITY OF CALIFORNIA

General co-chair in IEEE Reconfigurable Architecture Workshop 2010.

Program chair in SIGDA PhD Forum in DAC 2009.

TPC member of ACM/IEEE DATE 2010,2011, ASPDAC 2010,2011, EMSOFT 2009,2010, 2011, ISLPED 2009,2010,2011

Technical program committee of ACM/IEEE International Conference on Computer-Aided Design (ICCAD), 2004, 2006-2008.

Technical program committee of International Conference on Field Programmable Logic and Applications (FPL), 2005-2011.

Technical program committee of Reconfigurable Architecture Workshop (RAW), 2007-2010.

SELECTED PUBLICATIONS AND PRESENTATIONS from the past five years:

1. S. Banerjee, E. Bozorgzadeh, J Noguera, and N. Dutt, "Bandwidth Management in Application Mapping for Dynamically Reconfigurable Architectures", in *ACM Transactions on Reconfigurable Technology and Systems (TRETs)*, 2010.
2. S. Banerjee, E. Bozorgzadeh, and N. Dutt, "Exploiting application data-parallelism on dynamically reconfigurable architectures: placement and architectural considerations ", in *IEEE Transactions on VLSI (TVLSI)*, 2009.
3. L Singhal and E. Bozorgzadeh, "Multi-layer Floorplanning on a Sequence of Reconfigurable Designs", in *Proc. of IEEE International Conference on Field Programmable Logic and Applications (FPL)*, Madrid, Spain, 2006. (**received the best paper award**).
4. H. Kooti, E. Bozorgzadeh, S. Liao and L. Bao, "Transition-aware Real-Time Task Scheduling for Reconfigurable Embedded Systems", in *IEEE Design, Automation and Test in Europe (DATE10)*, Germany, March 2010
5. H. Kooti, E. Bozorgzadeh, S. Liao and L. Bao, "Reconfiguration-aware Spectrum Sharing for FPGA based Software Defined Radio", in *17th Reconfigurable Architectures Workshop (RAW10)*, Atlanta, April 2010.

PROFESSIONAL DEVELOPMENT ACTIVITIES - none

NAME - Peter J. Burke

EDUCATION

Ph.D., Physics and Applied Physics, Yale University, 1998
B.A., Physics, University of Chicago, 1992

ACADEMIC EXPERIENCE

UC Irvine, Professor, 2011-present
UC Irvine, Associate Professor, 2005-2011
UC Irvine, Assistant Professor, 2001-2005
Yale University, Acting Instructor, Physics, 1994-1996
Yale University, Teaching Assistant, Physics, 1992-1993
The University of Chicago, College Academic Physics Tutor, 1991-1992

NON-ACADEMIC EXPERIENCE

RF Nano Corporation, Irvine, CA, Consultant, Founder, consultant, and board member,
November 2005-2009

CERTIFICATIONS AND PROFESSIONAL REGISTRATIONS - none

CURRENT MEMBERSHIPS IN PROFESSIONAL ORGANIZATIONS

Professional and Honor Societies: (current and former)

American Physical Society, IEEE, American Association for the Advancement of Science, Sigma Xi

HONORS AND AWARDS

Honors and Awards:

2007	Best Presentation Award (Integration for Sensor Architectures), Nano-DDS conference
2005	Maseh Award for Outstanding Research, School of Engineering, UC Irvine, 2005
2002-2005	Young Investigator Program award, Army Research Office (ARO)
2002-2005	Young Investigator Award, Office of Naval Research (ONR)
2002	Frontiers of Engineering participant, National Academy of Engineering
1997-2000	Caltech Prize Fellowship: Sherman Fairchild Postdoctoral Scholar
1997	Award for Technical Excellence, Jet Propulsion Lab, NASA, 1997
1993-1996	NASA Graduate Student Research Program Fellowship
1993-1996	State of Connecticut High Technology Scholarship
1992	J.W. Gibbs Fellowship, Department of Physics, Yale University
1986	Eagle Scout

SERVICE ACTIVITIES within UNIVERSITY OF CALIFORNIA

Associate Chair for Graduate Affairs (2009-2012)
Preliminary exam committee (electromagnetics), 2002-2009
Graduate Admissions Committee, 2002-2007
Dean's School improvement Committee, April 2006-2007
Academic Freedom Subcommittee, Council on Faculty Welfare (Academic Senate), 2006-2009
Research Council member (UC System wide), UC SMART program, 2002-2005
Committee on Research/Graduate Programs for the Chancellor's Advisory Council, 2004

Created and organizing Cal-IT² Lectures on Molecular Nanotechnology and Quantum Information Science for the '02-'03 academic year, 2002-2003

SERVICE ACTIVITIES outside UNIVERSITY OF CALIFORNIA

Editorships:

Associate editor, 2009-, IEEE Transactions on Nanotechnology

Guest editor, 2004, International Journal of High Speed Electronics and Systems
special issue on nanowires and nanotubes

Conference chairmanships:

Session Chair/Program Committee, European Conference on Antennas and Propagation, 2010

Session Chair/Program Committee, Silicon RF (SiRF) Conference, 2010

Session Chair/Program Committee, International Conference on Printed Electronics, 2009

Session Chair/Program Committee, Nano-DDS, 2009

Session Chair, Eastman Conference, 2008

Session Chair, Nano-DDS, 2007

Technical program committee, IEEE Sensors Conference, 2004, and 2006

Session Chair: "Nanowires and Nanotubes for Sensing", SPIE Conference (Optics East 2004)

SELECTED PUBLICATIONS AND PRESENTATIONS from the past five years

[J46] Nima Rouhi, Santiago Capdevila, Dheeraj Jain, Katayoun Zand, Yung Yu Wang, Elliott Brown, Lluís Jofre, and Peter Burke. "Terahertz Graphene Optics" Nano Research, DOI: 10.1007/s12274-012-0251-02 (2012)

[J45] Tae-Sun Lim, Antonio Dávila Jr, Katayoun Zand, Douglas C. Wallace and Peter J. Burke "Wafer-scale mitochondrial membrane potential assays" Lab Chip, 2012,12, 2719-2725, DOI: 10.1039/C2LC40086C (2012)

[J44] Nima Rouhi, Dheeraj Jain, and Peter John Burke "High Performance Semiconducting Nanotube Inks: Progress and Prospects", ACS Nano, DOI: 10.1021/nn201828y(2011).

[J43] N. Rouhi, D. Jain, K. Zand, P. J. Burke "Fundamental Limits on the Mobility of Nanotube-Based Semiconducting Inks" Advanced Materials, DOI: 10.1002/adma.201003281 (2010).

[J42] N. Rouhi, D. Jain, P. J. Burke "Nanoscale Devices for Large-Scale Applications" IEEE Microwave Magazine, 72-80, 10.1109/MMM.2010.938569, (2010).

[J41] D. Jain, N. Rouhi, C. Rutherglen, C. Densmore, S. Doorn, P. J. Burke "Effect of source, surfactant, and deposition process on electronic properties of nanotube arrays" Journal of Nanomaterials, doi: 10.1155/2011/174268 (2010).

[J40] Tae-Sun Lim, Antonio Dávila, Douglas C. Wallace and Peter Burke "Assessment of mitochondrial membrane potential using an on-chip microelectrode in a microfluidic device" Lab on a Chip, DOI: 10.1039/c001818j (2010)

[J39] P.J. Burke, C. Rutherglen, "Towards a single-chip, implantable RFID system: is a single-cell radio possible?" Biomedical Microdevices, 12(4), 589 (2010)

[J38] S. Kang, C. Rutherglen, N. Rouhi, Peter J. Burke, L.N. Pfeiffer, K.W. West "An RF Circuit Model for a Quantum Point Contact" IEEE Sensors Journal, 10(3), 391-394 (2010)

[J37] C. Rutherglen, D. Jain, P.J. Burke, "Nanotube electronics for radiofrequency applications" Nature Nanotechnology, doi:10.1038/nnano.2009.355 (2009)

PROFESSIONAL DEVELOPMENT ACTIVITIES - none

NAME - Filippo Capolino

EDUCATION

Ph.D., Electrical Engineering, University of Florence, 1997

Laurea degree, Electrical Engineering, University of Florence, 1993

ACADEMIC EXPERIENCE

UC Irvine, Associate Professor, 2012-present

UC Irvine, Assistant Professor, 2008-2012

Department of Electrical and Computer Engineering, University of Houston, Adjunct Assistant Professor, 2003-2008

Department of Information Engineering, University of Siena, Assistant Professor, 2002-2008

Department of Electrical and Computer Engineering, University of Houston, Visiting Research Assistant Professor, 2005-2006

Department of Information Engineering, University of Siena, Research Associate, 1999-2002

Department of Aerospace and Mechanical Engineering, Boston University, Visiting Researcher, 1997-1998 and 1998-1999

NON-ACADEMIC EXPERIENCE - none

CERTIFICATIONS AND PROFESSIONAL REGISTRATIONS - none

CURRENT MEMBERSHIPS IN PROFESSIONAL ORGANIZATIONS

Senior Member IEEE

HONORS AND AWARDS

Co-Author of one of the "Fast Breaking Papers", October 2007

“Certificate of Recognition” to Filippo Capolino as an Additional Team Member, presented to “Electromagnetics and Plasma Physics ASC Code Developers”, Sandia National Laboratories,, NM, March 19, 2007

“R. P. W. King Prize Paper Award,” from the *IEEE Antennas and Propagation Society*, given to an author under age 36 for the most outstanding paper published in the *IEEE Transactions on Antennas and Propagation* in 2000

SERVICE ACTIVITIES within UNIVERSITY OF CALIFORNIA

Chair of the Preliminary Exam Committee, EE Circuits & Devices, F2009, S2010, F2010

Member of MS and PhD exam and thesis dissertation committees

SERVICE ACTIVITIES outside UNIVERSITY OF CALIFORNIA

Associate Editor IEEE 2002-2008

Editorial Review Board Member, Journal Metamaterials, April 2007 - present

Principal Coordinator, Consortium of EU PhD Programmes in Metamaterials, 2004-2010

Session Organizer and Chair, at several international conferences

Technical Program Committee (TPC) Member for several international conferences

SELECTED PUBLICATIONS AND PRESENTATIONS from the past five years

65 Journal articles (mostly *IEEE Transactions*), 205 Conference proceedings, and 12 book chapters. Editor of two books.

Books

Theory and Phenomena of Metamaterials, Ed.: F. Capolino, CRC Press, Boca Raton, FL, 2009.
Applications of Metamaterials, Ed.: F. Capolino, CRC Press, Boca Raton, FL, 2009.

Articles, Journal

Collective electric and magnetic plasmonic resonances in spherical nanoclusters. A. Vallecchi, M. Albani, and F. Capolino, *Optics Express*, Vol. 19, Issue 3, pp.2754-2772, (2011).

Symmetric and antisymmetric resonances in a pair of metal-dielectric nanoshells: tunability and closed-form formulas. A. Vallecchi, S. Campione, F. Capolino, *Journ. of Nanophotonics*, Vol. 4, 041577, 27 Apr. (2010).

Highly Polarized, Directive Radiation from a Fabry-Perot Cavity Leaky-Wave Antenna based on a Metal Strip Grating. P. Burghignoli, G. Lovat, F. Capolino, D. R. Jackson, and D. R. Wilton, *IEEE Trans. Antennas and Propagation*, 58(12), 3873-3883, Dec., (2010).

Truncation Effects in a Semi-infinite Periodic Array of Thin Strips: a Discrete Wiener-Hopf Formulation. Capolino, F., Albani, M. *Radio Science*, 44. (2009).

Metamaterial Made of Paired Planar Conductors: Particle Resonances, Phenomena and Properties. Donzelli, G., Vallecchi, A., Capolino, F., Schuchinsky, A. *Metamaterials*, 3(1), 10-27. (2009).

Directive radiation from defect-free dodecagonal photonic quasicrystals: A leaky wave characterization. Micco, A., Galdi, V., Capolino, F., Della Villa, A., Pierro, V., Enoch, S., Tayeb, G. *Physical Rev. B.*, 79(7), 075110. (2009).

Frequency dependent steering with backward leaky waves via Photonic Crystal Interface Layer. Colak, E., Caglayan, H., Cakmak, A. O., Della Villa, A., Capolino, F., Ozbay, E. *Optics Express*, 17(12), 9879-9890. (2009).

Tightly coupled tripole conductor pairs as constituents for a planar 2D-isotropic negative refractive index metamaterial. Vallecchi, A., Capolino, F. *Optics Express*, 12. (2009).

UTD Vertex Diffraction Coefficient for the Scattering by Perfectly Conducting Faceted Structures. Albani, M., Capolino, F., Carluccio, G., Maci, S. *IEEE Trans. Antennas and Propagation*. (2009).

2-D Isotropic Effective Negative Refractive Index Metamaterial in Planar Technology. Vallecchi, A., Capolino, F., Schuchinsky, A. *IEEE Microwave and Wireless Components Letters*, 19(5), 269-271. (2009).

PROFESSIONAL DEVELOPMENT ACTIVITIES - none

NAME - Michael J. Carey

EDUCATION

Ph.D, Computer Science, University of California, Berkeley, 1983

M.S., Electrical Engineering (Computer Engineering), Carnegie-Mellon University, 1981

B.S., Electrical Engineering and Mathematics, Carnegie-Mellon University, 1979

ACADEMIC EXPERIENCE

University of California, Irvine, Bren Professor, 2008-present, Full-time

Stanford University, 2007, Visiting Lecturer, Part-time

University of California, Berkeley, 1999, Stonebraker Visiting Fellow, Part-time

University of Wisconsin-Madison, Professor, 1991-1995, Full-time

University of Wisconsin-Madison, Associate Professor, 1988-1991, Full-time

University of Wisconsin-Madison, Assistant Professor, 1983-1988, Full-time

NON-ACADEMIC EXPERIENCE

Architect, Oracle Corporation, 2008

Senior Engineering Director, BEA Systems, Inc., 2005-2008

Technical Director, BEA Systems, Inc., 2001-2005

Fellow, Propel Software, 2000-2001

Research Staff Member/Manager, IBM Almaden Research Center, 1997-2000

Research Staff Member, IBM Almaden Research Center, 1995-1997

CERTIFICATIONS AND PROFESSIONAL REGISTRATIONS - None

CURRENT MEMBERSHIPS IN PROFESSIONAL ORGANIZATIONS

Association for Computing Machinery (ACM)

Institute for Electrical and Electronics Engineers (IEEE)

HONORS AND AWARDS

ACM SIGMOD E.F. Codd Innovations Award, 2005

Test of Time Paper Award, ACM SIGMOD Conference, 2004

National Academy of Engineering (NAE), 2002

Distinguished Alumnus Award, U.C. Berkeley EECS Department, 2002

ACM SIGMOD Contributions Award (co-recipient with L. Haas), 2000

ACM Fellow, 2000

IBM Outstanding Technical Achievement Award, 1999

10-Year Best Paper Award, VLDB Conference, 1996

SERVICE ACTIVITIES within UNIVERSITY OF CALIFORNIA

CS Vice Chair for Graduate Studies, 2010-present
CS Graduate Admissions Committee Member, 2009-present
ICS Bren Chair Search Committee Member, 2010-2012
CS Faculty Recruiting Committee Member, 2010-2011
ICS Dean External Search Committee Member, 2009-2010

SERVICE ACTIVITIES outside UNIVERSITY OF CALIFORNIA

Program Co-Chair, ACM Symposium on Cloud Computing, 2012
Program Chair, High Performance Transaction Systems Workshop, 2011
Trustee, VLDB Endowment, 1996-2002, 2010-present
Member, IEEE Data Engineering Awards Committee, 2007-present
Co-Editor-in-Chief, Data-Centric Systems and Applications, Springer-Verlag, 2002-present
Editorial Board, Foundations and Trends in Database Systems, Now Publishers, 2009-present
Associate Editor, ACM Transactions on Database Systems, 1992-2004
Editorial Board, VLDB Journal, 1996-2003
Chair, ACM SIGMOD Advisory Board, 1998-2001

SELECTED PUBLICATIONS AND PRESENTATIONS from the past five years:

1. “Data Services”, M. Carey, N. Onose, and M. Petropoulos, Communications of the ACM, June 2012.
2. “Inside ‘Big Data Management’: Ogres, Onions, or Parfaits?”, V. Borkar, M. Carey, and C. Li, Proceedings of the International Conference on Extending Database Technology, Berlin, Germany, March 2012.
3. “ASTERIX: Towards a Scalable, Semistructured Data Platform for Evolving World Models”, A. Behm, V. Borkar, M. Carey, C. Li, N. Onose, R. Vernica, A. Deutsch, Y. Papanikolaou, and V. Tsotras, Journal of Parallel and Distributed Databases, Springer-Verlag Publishers, June 2011.
4. “Hyracks: A Flexible and Extensible Foundation for Data-Intensive Computing”, V. Borkar, M. Carey, R. Grover, N. Onose, and R. Vernica, Proceedings of the IEEE International Conference on Data Engineering, Hannover, Germany, April 2011.
5. “Answering Approximate String Queries on Large Data Sets Using External Memory”, A. Behm, C. Li, and M. Carey, Proceedings of the IEEE International Conference on Data Engineering, Hannover, Germany, April 2011.
6. “Efficient Parallel Set-Similarity Joins Using MapReduce”, R. Vernica, M. Carey, and C. Li, Proceedings of the ACM SIGMOD International Conference on Management of Data, Indianapolis, IN, June 2010.

PROFESSIONAL DEVELOPMENT ACTIVITIES - None

NAME - Pai H. Chou

EDUCATION

Ph.D., Computer Science & Engineering, University of Washington, 1998

M.S., Computer Science & Engineering, University of Washington, 1993

A.B., University of California, Berkeley, 1990

ACADEMIC EXPERIENCE

UC Irvine, Professor, 2012-present

UC Irvine, Associate Professor, 2006-2012

UC Irvine, Assistant Professor, 1999-2006

NON-ACADEMIC EXPERIENCE - none

CERTIFICATIONS AND PROFESSIONAL REGISTRATIONS - none

CURRENT MEMBERSHIPS IN PROFESSIONAL ORGANIZATIONS

ACM (Association of Computing Machinery)

IEEE (International Electrical and Electronic Engineers)

HONORS AND AWARDS

Design Contest Award, DAC/ISSCC, 2007

Low Power Design Contest, ISLPED, 2006, 2005, 2004, 2003

Best Demo Award, IEEE SECON, 2006

Faculty Early Career Development (CAREER) Award, National Science Foundation, 2005

Chancellor's Award for Excellence in Undergraduate Research UC Irvine, 2005

Recognition of Service Award, Association for Computing Machinery (ACM), 2004

Best paper award, Asia South-Pacific Design Automation Conference, 2002

SIGDA Technical Leadership Award, ACM SIGDA, 2002

SERVICE ACTIVITIES within UNIVERSITY OF CALIFORNIA

Associate Chair, Computer Engineering Program, September 1, 2009-present

Undergraduate Advisor, Computer Engineering (CpE), 2004-2006

Undergraduate Advisor, Computer Science and Engineering (CSE), 2004-2006

Member, Facilities Improvement Committee, EECS Department, 2003-2006

ECE Department Webmaster, 2000-2003

ECE/School of the Arts joint Ad hoc Search Committee, 2000-2001

ECE Department Search Committee, 1999-2000

Member, HSSoE Executive Committee, 2007-present

Engineering Representative, CSE Committee, 2003-2006.

CSE Representative, UGSC, HSSoE, 2003-2006

Web/Communication Committee, The Henry Samueli School of Engineering, 2003-2005

Board on Undergraduate Scholarships, Honors, and Financial Aid, 2003-2005

Faculty representative to committee, Student Fees Advisory Committee, 2001-2002

Member, Committee on Undergrad Affairs, 2000-2002

SERVICE ACTIVITIES outside UNIVERSITY OF CALIFORNIA

Associate Editor, IEEE Embedded Systems Letters, 2009-present.

Associate Editor, Design Automation for Embedded Systems, Springer, 2005-present

Associate Editor, IEEE Transactions on VLSI Systems, 2001-2004

Associate Editor, Journal of Systems Architecture - the EuroMicro Journal, Elsevier Science, 2000-2003

SELECTED PUBLICATIONS AND PRESENTATIONS from the past five years

Articles, Journal

Sehwan Kim and Pai H. Chou, ``[Size and Topology Considerations for Supercapacitor-Based Micro-Solar Harvesters](#)`, to appear, in *IEEE Transactions on Power Electronics* (TPEL), Vol. 28, Issue 4, April 2013. pp. 2068-2080.

Anping Wang, Pai H. Chou, Jiwon Hahn, and Mahshid Roumi, ``[Buffer Optimization and Dispatching Scheme for Embedded Systems with Behavioral Transparency](#)`, in *ACM TODAES*, Vol. 17, Issue 4, October 2012.

Sehwan Kim, Keun-Sik No, and Pai H. Chou, "[Design and Performance Analysis of Supercapacitor Charging Circuits for Wireless Sensor Nodes](#)," in *IEEE Journal on Emerging and Selected Topics in Circuits and Systems*, Vol. 1, No. 3, September 2011. pp. 391-402.

Jinsik Kim and Pai H. Chou, ``[Energy-Efficient Progressive Remote Update for Flash-Based Firmware of Networked Embedded Systems](#)`, in *ACM TODAES*, 16 (1), November (2010).

Conference/Workshop/Symposium Proceedings

Sehwan Kim and Pai H. Chou, [Energy Harvesting by Sweeping Voltage-Escalated Charging of a Reconfigurable Supercapacitor Array](#), in *Proc. International Symposium on Low Power Electronics and Design (ISLPED)*, Fukuoka, Japan, August 1-3, 2011. pp. 235-240.

Yi-Hsuan Tu, Yen-Chiu Li, Ting-Chou Chien, and Pai H. Chou, "[EcoCast: Interactive, Object-Oriented Macroprogramming for Networks of Ultra-Compact Wireless Sensor Nodes](#)," in *Proc. the 10th International Conference on Information Processing in Sensor Networks (IPSN 2011)*, Chicago, IL, USA, April 12-14, 2011. pp. 366-377.

Chen Y.-T., Chien, T.-C., Chou, P.H., [Enix: A Lightweight Dynamic Operating System for Tightly Constrained Wireless Sensor Platforms](#), In *Proc. SenSys*, Zurich, Switzerland, (2010).

Hahn, J., Chou, P. H., [Nucleos: a Runtime System for Ultra-Compact Wireless Sensor Nodes](#), In *Proc. EMSOFT*, Scottsdale, AZ, USA, (2010)

Chen, C.-Y., Chou, P.H., [DuraCap: a Supercapacitor-Based, Power-Bootstrapping Maximum Power Point Tracking Energy-Harvesting System](#)," In *Proc. ISLPED* (2010).

PROFESSIONAL DEVELOPMENT ACTIVITIES -

ABET Faculty Workshop on Sustainable Assessment Process, February 2010.

NAME - Franco De Flaviis

EDUCATION

Ph.D., Department of Electrical and Computer Engineering, University of California, Los Angeles, 1997

M.S., Department of Electrical and Computer Engineering, University of California, Los Angeles, 1994

Laurea Degree, Department of Electrical Engineering, University of Ancona, 1990

ACADEMIC EXPERIENCE

UC Irvine, Professor, 2009-present

UC Irvine, Associate Professor, 2003-2009

UC Irvine, Assistant Professor, 1998-2003

Postdoctoral Fellow, Electrical Engineering, University of California, Los Angeles, 1998

Department of Electrical Engineering, University of California, Visiting Researcher, 1991-1992

NON-ACADEMIC EXPERIENCE

Phraxos R&D, Project Manager, 1995

Alcatel Telecommunication, Junior Engineer, 1990

Broadcom Corporation, Irvine, CA, Consultant, Design of RF components embedded in printed circuit board., 2000-2008

CERTIFICATIONS AND PROFESSIONAL REGISTRATIONS - none

CURRENT MEMBERSHIPS IN PROFESSIONAL ORGANIZATIONS

The Institute of Electrical and Electronic Engineers (IEEE), Member

HONORS AND AWARDS - none

SERVICE ACTIVITIES within UNIVERSITY OF CALIFORNIA

Member, Faculty Improvement committee, 2003

Chair, Preliminary exam in Electromagnetics, 2002-2006

Member, Preliminary exam committee in Electromagnetic, 1999-2001

Member of UC academic senate for the Henry Samueli School of Engineering Department representative to the Executive Committee, 2000-present

SERVICE ACTIVITIES outside UNIVERSITY OF CALIFORNIA

Associate Editor, Electromagnetics Journal, 2004-present

Associate Editor, IEEE Applied Wireless and Propagation Journal (AWPL), 2004-present

Reviewer, Journal Article, IEEE Antenna and Propagation Journal, 1998-present

Reviewer, Journal Article, IEEE Microwave Letters Journal, 1998-present

Reviewer, Journal Article, IEEE Microwave Theory and Techniques Journal, 1998-present

SELECTED PUBLICATIONS AND PRESENTATIONS from the past five years

Articles, Journal

Reconfigurable dual-band antenna with high frequency ratio (1.6:1) using MEMS switches. Jung, C. W., Lee, M. J., Flaviis, F. D. *IEEE Electronic letters*, 44. (2008).

A two-point modulation technique for CMOS power amplifier in polar transmitter architecture. Shameli, A., Safarian, A., Rofougaran, A., Rofougaran, M., Flaviis, F. D. *IEEE Transactions on Microwave Theory and Techniques*, 56, 31-38. (2008).

In-Line RF-MEMS series switches for reconfigurable antenna applications. Jung, C. W., Lee, B., Flaviis, F. D. *Microwave and optical technology letters*, 49, 3130-3134. (2007).

Macro-micro frequency tuning antenna for reconfigurable wireless communication system. Jung, C. W., Kim, Y. J., Flaviis, F. D. *Electronic letters*, 43. (2007).

Power Harvester Design for Passive UHF RFID Tag Using a Voltage Boosting Technique. Shameli, A., Safarian, A., Rofougaran, A., Rofougaran, M., Flaviis, F. D. *IEEE Transactions on Microwave Theory and Techniques*, 55, 1089-1097. (2007).

Books, Authored

Multi-Antenna System for MIMO Communications. De Flaviis, F., Joffre, L., Romeu, J., Grau, A. Morgan and Claypool. (2008).

Books, Chapters

Guided-Waves. De Flaviis, F. In W.-K. Chen (Ed.), *The Electrical Engineering Handbook*. (pp. 539-551). Elsevier Academic press. (2005).

Conference/Workshop/Symposium Proceedings

Bandwidth enhancement of high-isolation iso-frequency repeaters using MEMS reconfigurable loaded parasitics. Luis, J. R. D., Grau, A., Romeu, J., Jofre, L., Flaviis, F. D. *IEEE Antenna and Propagation International Symposium*. (2008).

State-selection in a space-time-state block coded MIMO communication system using reconfigurable PIXEL antennas. Fazel, F., Grau, A., Jafarkani, H., Flaviis, F. D. *Globecom*. (2008).

A space time block coded reconfigurable MIMO communication system using ORIOL antennas. Fazel, F., Grau, A., Jafarkani, H., Flaviis, F. D. *WCNC*. (2008).

A software defined MEMS-reconfigurable PIXEL-Antenna for narrowband MIMO systems. Besoli, A. G., Romeu, J., Jofre, L., Flaviis, F. D. *AHS*. (2008).

Multi-port Multi-band Small Antenna Design. Yoon, S., Jung, C. W., Kim, Y. e., Flaviis, F. D. *IEEE Asia Pacific Microwave Conference*, Bangkok, Thailand. (2007).

PROFESSIONAL DEVELOPMENT ACTIVITIES - none

NAME Rina Dechter

EDUCATION

Ph.D, Computer Science, UCLA, 1985

M.A., Applied Math, Weizman Institute of Science, 1975

B,Sc, Mathematics and Statistics, The Hebrew University, 1973

ACADEMIC EXPERIENCE

UC Irvine, Professor, 1996-present, Full-time

UC Irvine, Associate Professor, 1992-1996, Full-time

UC Irvine, Assistant Professor, 1990-1992, Full-time

Technion, Assistant Professor, 1988-1990, Full-time

NON-ACADEMIC EXPERIENCE

Hughes Aircraft, Calabasas July 85 - Mar 88: Staff member, AI Center.

Perceptronics Inc. Woodland Hills, California Oct 78 - Mar 80: Research Mathematician
Responsible for modeling, experimental design and computer simulations
for Human-Resource Test and Evaluation for advanced weapon
systems

CURRENT MEMBERSHIPS IN PROFESSIONAL ORGANIZATIONS -

ACM: Association of computing Machinery, 2006-present

AAAI: Association of Artificial Intelligence, 1985-present

Association of Constraint Programming: 2000-present.

HONORS AND AWARDS -

-1986-87: UC Presidential Postdoctoral Fellowship.

_ 1990: Best Paper, Canadian AI Conference (CSCSI-90)

_ 1991: NSF Presidential Young Investigator.

_ 1994: AAAI Fellow.

_ 2005-2006: Radcliffe Fellow.

_ 2007: ACP (Association of Constraint Programming) research excellence Award

-2008: Bren School Dean's Excellence in Research award.

_ 2009: Elected as co-editor in chief for the Artificial Intelligence Journal, 2011- present

SERVICE ACTIVITIES within UNIVERSITY OF CALIFORNIA

Member, Council on academic Personnel, 2007-2009, UCI

SERVICE ACTIVITIES outside UNIVERSITY OF CALIFORNIA

Co-Editor in chief: *Artificial Intelligence journal*, 2011–2015

Editorial board: *Logic in Computer Science (LMCS)*, 2004-present.
Editorial board: *CONSTRAINTS an International journal*, 1996-present.
Editorial board: *Journal of AI Research (JAIR)*, 1993-2000.
Editorial board: *Journal of AI Research (JAIR)*, Associate editor, 2006-2009.
Advisory board: *Journal of AI Research (JAIR)*, 2009-present.
Program chair of *Constraint Programming 2000 (CP2000)*.
Program co-chair of *National Conference of Artificial Intelligence, 2002 (AAAI2002)*.
Program co-chair of *Uncertainty in Artificial Intelligence, 2006 (UAI06)*

SELECTED PUBLICATIONS AND PRESENTATIONS from the past five years:

“B. Bidyuk and R. Dechter. “Cutset Sampling for Bayesian Networks”.

Journal of Artificial Intelligence research (JAIR), 28: 1-48, 2007.

R. Dechter and R. Mateescu. “AND/OR Search Spaces for Graphical Models”. In *Artificial Intelligence Journal*, 171(2-3): 73-106, 2007.

“R. Mateescu, R. Dechter and R. Marinescu “AND/OR Multi-Valued Decision Diagrams (AOMDDs) for Graphical Models”, (*JAIR*), *J. Artif. Intell. Res. (JAIR)* 33: 465-519 (2008)

R. Mateescu and R. Dechter “Mixed Probabilistic and Deterministic Networks” *Anal. of Math and Artificial Intelligence*. 54(1-3): 3-51 (2008).

R. Marinescu and R. Dechter: Memory intensive AND/OR search for combinatorial optimization in graphical models. *Artif. Intell.* 173(16-17): 1492-1524 (2009)

V. Gogate and R. Dechter. “SampleSearch: Importance Sampling in presence of Determinism.” Accepted to *Artificial Intelligence*, October, 2010.

R. Mateescu, K. Kask, V. Gogate, and R. Dechter. “Join-Graph Propagation Algorithms.” *Journal of Artificial Intelligence Research (JAIR)*, 37 (2010) 279-328.

V. Gogate and R. Dechter “Importance Sampling based Estimation over AND/OR Search Spaces for Graphical Models”, Accepted for *Artificial Intelligence*, 2010.

Invited Colloquim, “Advanced reasoning in graphical models”, USC, 2008.

Invited Colloquim, “AND/OR search spaces for probabilistic and deterministic graphical models”, University of Washington, Seattle, January, 2010.

Invited Talk “On the power of belief propagation: A constraint propagation perspective”, In Symposium in honor of Judea Pearl, March 2010.

Invited speaker “From AND/OR Search to AND/OR BDDs” Workshop on Constraints and Verification, Isaac Newton Institute for Mathematical Sciences, May 8-12, 2006 Cambridge, England.

invited speaker “A new scheme for generating random solutions”

IBM Scientific Research center, Haifa, Israel, January, 2008.,

Invited lecture “Recent Advances in Combinatorial Optimization Tasks over Graphical Models”, Hebrew University, December 31st, 2009.

NAME - Brian C. Demsky

EDUCATION

Ph.D., Computer Science, Massachusetts Institute of Technology, 2006

S.M., Computer Science, Massachusetts Institute of Technology, 2001

B.S., Physics, University of Texas at Austin, 1998

B.S., Electrical Engineering, University of Texas at Austin, 1998

ACADEMIC EXPERIENCE

UC Irvine, Associate Professor, 2011-present

UC Irvine, Assistant Professor, 2006-2010

UC Irvine, Assistant Acting Professor, 2005-2006

MIT Computer Science and Artificial Intelligence Lab, Research Assistant, 1999-2005

MIT Research Lab for Electronics, Research Assistant, 1998-1999

National Undergraduate Fellowship in Plasma Physics and Fusion Engineering, Undergraduate Research, 1996-1997

Applied Research Labs Honors Program at the University of Texas at Austin, Summer Research Assistant, 1997

National Science Foundation Research Experience for Undergraduates at the University of Connecticut, Undergraduate Research Assistant, 1995

NON-ACADEMIC EXPERIENCE - none

CERTIFICATIONS AND PROFESSIONAL REGISTRATIONS - none

CURRENT MEMBERSHIPS IN PROFESSIONAL ORGANIZATIONS

ACM Special Interest Group on Software Engineering (SIGSOFT)

HONORS AND AWARDS

ACM SIGSOFT Distinguished Paper Award for ICSE 2005, 2005

Hertz Foundation Fellowship, 1998-2003

SERVICE ACTIVITIES within UNIVERSITY OF CALIFORNIA

Served on committee for Daniel Wang's Qualifying Exam, 2006

Undergraduate Faculty Advising, April 18, 2006

Served on committee for Jiwon Hahn's Qualifying Exam, 2006

SERVICE ACTIVITIES outside UNIVERSITY OF CALIFORNIA

Reviewer, Extramural Funding, Advanced Execution Systems, NSF, 2006

Referee, IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems, 2006

Program Committee Member, 2005 International Conference on Autonomic Computing (ICAC 2005), 2005

Referee, Eleventh International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS 2004), 2004

SELECTED PUBLICATIONS AND PRESENTATIONS from the past five years

Articles, Journal

AFID: An Automated Approach to Collecting Software Faults. Edwards, A., Tucker, S., Demsky, B. C. *Automated Software Engineering Journal*, 17(3), 347-372. (2010).

Automatic Extraction of Heap Reference Properties in Object-Oriented Programs. Demsky, B. C., Rinard, M. *IEEE Transactions on Software Engineering*, 35(3), 305-324. (2009).

Conference/Workshop/Symposium Proceedings

Recovery Tasks: An Automated Approach to Failure Recovery. Demsky, B. C., Zhou, J., Montaz, W. In *To Appear in the Proceedings on the First International Conference on Runtime Verification. International Conference on Runtime Verification*, (pp. 15 pages). (2010).

Automatically Generating Symbolic Prefetches for Distributed Transactional Memories. Dash, A., Demsky, B. C. In *Proceedings of the ACM/IFIP/USENIX 11th International Middleware Conference. ACM/IFIP/USENIX 11th International Middleware Conference*, (pp. 20 pages). (2010).

Bamboo: A Data-Centric, Object-Oriented Approach to Multi-core Software. Zhou, J., Demsky, B. C. In *Proceedings of the ACM SIGPLAN 2010 Conference on Programming Language Design and Implementation. 2010 Conference on Programming Language Design and Implementation*, (pp. 388-399). (2010).

Views: Object-Inspired Concurrency Control. Demsky, B. C., Lam, P. In *Proceedings of the 2010 International Conference on Software Engineering. 2010 International Conference on Software Engineering*, (pp. 395-404). (2010).

Reports, Technical

Disjoint Reachability Analysis. Jenista, J. C., Eom, Y. h., Demsky, B. C. (Technical Report UCI-ISR-10-4). (2010).

Disjointness Analysis for Java-Like Languages. Jenista, J. C., Demsky, B. C. (Technical Report UCI-ISR-09-1). (2009).

Software Transactional Distributed Shared Memory. Dash, A., Demsky, B. C. (Technical Report UCI-ISR-09-2). (2009).

PRESENTATIONS

Reliable software design with built-in repair mechanisms, University of California at Irvine, April 2006.

Automatic detection and repair of errors in data structures, Massachusetts Institute of Technology, November 2005.

PROFESSIONAL DEVELOPMENT ACTIVITIES - none

NAME - Michael B. Dillencourt

EDUCATION

Ph.D, Computer Science, University of Maryland, 1988

M.S., Computer Science, University of Wisconsin, 1976

M.A., Mathematics, University of Wisconsin, 1975

B.S., Mathematics (With High Honor), Michigan State University, 1973

ACADEMIC EXPERIENCE

UC Irvine, Professor, 2005-present, Full-time

UC Irvine, Associate Professor, 1993-2005, Full-time

UC Irvine, Assistant Professor, 1989-1993, Full-time

University of Maryland, Visiting Assistant Professor, 1988-1989, Full-time

University of Wisconsin, Teaching Assistant, Mathematics Dept, 1973-1978, Half-Time

NON-ACADEMIC EXPERIENCE

PAR Government Systems Division (Reston, VA), Senior Software Engineer, 1987-1988

CGA Technologies (McLean, VA; Lanham, MD), Software Engineer, 1982-1987

CTA Associates, (Rockville, MD), Software Engineer, 1982-1983

American Management Systems (Arlington, VA), Member of Technical Staff, 1978-1982

CERTIFICATIONS AND PROFESSIONAL REGISTRATIONS - none

CURRENT MEMBERSHIPS IN PROFESSIONAL ORGANIZATIONS

IEEE (Computer Society)

HONORS AND AWARDS

ICS Excellence in Undergraduate Education Award, 2008

SERVICE ACTIVITIES within UNIVERSITY OF CALIFORNIA

ICS Academic Personnel Committee: 1993-1994, 1995-1997, 2000-2002, 2005-2006 [Chair
1995-1997, 2001-2002]

ICS Executive Committee 1993-1994

ICS Faculty Chair 1994-1995

ICS Disqualification Officer 1997-1998

ICS Graduate Admissions Committee, 1999-2000

ICS Committee on Educational Policy 1991-1992, 2006-2007

ICS Representative, UCI Academic Senate 1995-1997

SERVICE ACTIVITIES within UNIVERSITY OF CALIFORNIA (continued)

Search Committee, Dean of School of Engineering, 1995-1996

UCI Committee on Courses, 1995-1997

Policy Advisory Committee, Institute for Transportation Studies, 1993-1995

SERVICE ACTIVITIES outside UNIVERSITY OF CALIFORNIA

Program Committee member, Canadian Conference on Computational Geometry, 1992-1993

Program Committee member, SIAM Conference on Discrete Mathematics, 1996

Program Committee member, International Symposium on Parallel and Distributed Processing and Applications, 2007

SELECTED PUBLICATIONS AND PRESENTATIONS from the past five years:

- “Pretty Good Accuracy in Matrix Multiplication with GPU’s,” M. Badin, L. Bic, M. B. Dillencourt, and A. Nicolau, Ninth International Symposium on Parallel and Distributed Computing (ISPDC 2010), July, 2010.
- “Automatic Resource Management in Multi-site Mobile Computing,” Q. Shang, M. Fukuda, M. B. Dillencourt, and L. Bic, 5th International Conference on Mobile Computing and Ubiquitous Networking (ICMU 2010), April, 2010.
- “Distributed Individual-Based Simulation,” J. Liu, M. B. Dillencourt, L. F. Bic, D. Gillen, and A. D. Lander, Euro-Par 2009 Parallel Processing, August 2009.
- “Gas-leak localization Using Distributed Automatic Sensors,” J. Huseynov, L. F. Bic, and M. B. Dillencourt, Proc SPIE 7293, March 2009.
- “Mobile Agents, DSM, Coordination, and Self-Migrating Threads: A Common Framework,” International Conference on Data Networks, Communications, and Computers (DNCOCO 08), November 2008.
- “Efficient Global Pointers with Spontaneous Process Migration,” K. Noguchi, M. B. Dillencourt, and L. Bic, 16th Euromicro International Conference on Parallel, Distributed and Network-Based Processing (PDP 2008), February 2008.
- “Toward Automatic Data Distribution for Migrating Computations,” L. Pan, J. Xue, M. K. Lai, M.B. Dillencourt, and L. F. Bic, International Conference on Parallel Processing (ICPP 07), September 2007.
- “Toward Incremental Parallelism,” L. Pan, W. Zhang, M.K. Lai, M.B. Dillencourt, L.F. Bic, and L.T. Yang, IEICE Transactions on Information and Systems 89:2 (2006).
- “Choosing Colors for Geometric Graphs via Color Space Embeddings,” M. B. Dillencourt, D. Eppstein, and M. T. Goodrich, Fourteenth Symposium on Graph Drawing (GD 2006), September 2006.

PROFESSIONAL DEVELOPMENT ACTIVITIES - None

NAME - Rainer Doemer

EDUCATION

Doktor der Naturwissenschaften (Ph.D.), Information and Computer Science, University of Dortmund, 2000

Diplom-Informatiker (M.S.), Information and Computer Science, University of Dortmund, 1995

Vordiplom Informatik (B.S.), Information and Computer Science, University of Dortmund, 1991

ACADEMIC EXPERIENCE

UC Irvine, Associate Professor, 2009-present

UC Irvine, Assistant Professor, 2003-2009

UC Irvine, Postdoctoral Researcher, 2001-2003

NON-ACADEMIC EXPERIENCE

Y Explorations Inc., Lake Forest, California, CAD R&D Engineer, 1999-2000

CERTIFICATIONS AND PROFESSIONAL REGISTRATIONS - none

CURRENT MEMBERSHIPS IN PROFESSIONAL ORGANIZATIONS

IEEE Member, Computer Society (since 1996)

HONORS AND AWARDS

2008 Faculty Early Career Development Award, National Science Foundation (NSF)

2008 Gold Medal, EECS Colloquium, UC Irvine

2005 Best Paper Award, International Embedded Systems Symposium (IESS)

SERVICE ACTIVITIES within UNIVERSITY OF CALIFORNIA

2010-2011 Co-Chair, Steering Committee, Computer Science and Engineering Program

2006-2012 Steering Committee Member, Computer Science and Engineering (CSE) Program

2010-2012 Committee Member, EECS Faculty Search Committee

2006-2012 Committee Member, EECS Preliminary Examination in CpE

2010-2011 Committee Member, EECS Computing Committee

2008-2009 Committee Member, EECS Graduate Admission

2004-2009 Committee Member, EECS Infrastructure Committee

SERVICE ACTIVITIES outside UNIVERSITY OF CALIFORNIA

Program Chair, International Embedded Systems Symposium (IESS), Irvine, California, 2007

Workshop Organizer, Design Automation Conference (DAC) Workshop on Hardware-dependent Software, San Diego, 2007

Special Session Organizer, ASPDAC'09, ASPDAC'10

Technical Program Committee Member: DAC, DATE, CODES+ISSS, IESS, MEMOCODE

Reviewer for Journals: IEEE TCAD, IEEE TC, IEEE DTSI, IEEE D&T, ACM TECS, ACM TODAES, DAES, FORM, JES, IEICE

Reviewer for Conferences: DAC, DATE, CODES+ISSS, ICCAD, ISCAS, IESS

Reviewer for Funding Agencies: National Science Foundation (NSF), FCT of Portugal, Dutch Technology Foundation

Board of Trustees Member, Waldorf School of Orange County, 2006-2012

SELECTED PUBLICATIONS AND PRESENTATIONS from the past five years

Books, edited

A. Rettberg, M. Zanella, R. Dömer, A. Gerstlauer, F. Rammig: "Embedded System Design: Topics, Techniques and Trends", Springer, Boston, June 2007. (ISBN 978-0-387-72257-3)

W. Ecker, W. Müller, R. Dömer: "Hardware-dependent Software – Principles and Practice", Springer, Boston, January 2009.

Journal Articles

A. Gerstlauer, D. Shin, J. Peng, R. Dömer, D. Gajski: "Automatic Layer-Based Generation of System-On-Chip Bus Communication Models", IEEE TCAD, vol. 26, no. 9, pp. 1676-1687, Sept. 2007.

G. Schirner, R. Dömer: "Result Oriented Modeling - A Novel Technique for Fast and Accurate TLM", IEEE TCAD, vol. 26, no. 9, pp. 1688-1699, Sept. 2007.

D. Shin, A. Gerstlauer, R. Dömer, D. Gajski: "An Interactive Design Environment for C-based High-level Synthesis of RTL Processors", IEEE TVLSI, vol. 16, no. 4, pp. 466-475, April 2008.

G. Schirner, R. Dömer: "Quantitative Analysis of the Speed/Accuracy Trade-off in Transaction Level Modeling", ACM TECS, vol. 8, no. 1, article 4, December 2008.

P. Chandraiah, R. Dömer: "Code and Data Structure Partitioning for Parallel and Flexible MPSoC Specification Using Designer-Controlled Recoding", IEEE TCAD, vol. 27, no. 6, pp. 1078-1090, June 2008.

R. Dömer, A. Gerstlauer, J. Peng, D. Shin, L. Cai, H. Yu, S. Abdi, D. Gajski: "System-on-Chip Environment: A SpecC-Based Framework for Heterogeneous MPSoC Design", EURASIP Journal on Embedded Systems, vol. 2008, article ID 647953, 13 pages, July 2008.

G. Schirner, A. Gerstlauer, R. Dömer: "Fast and Accurate Processor Models for Efficient MPSoC Design", ACM TODAES, vol. 15, no. 2, article 10, 26 pages, February 2010.

P. Chandraiah, R. Dömer: "Computer-Aided Recoding to Create Structured and Analyzable System Models", ACM TECS, pages 1-29, accepted for publication December 21, 2009.

W. Chen, X. Han, R. Dömer: "Multi-Core Simulation of Transaction Level Models using the System-on-Chip Environment", IEEE D&T Special Issue, to appear May/June, 2011.

PROFESSIONAL DEVELOPMENT ACTIVITIES - none

NAME: NIKIL DUTT

EDUCATION:

- B.S. Birla Institute of Technology & Science, (BITS) Pilani, India, 1980
- M.S. The Pennsylvania State University, University Park, PA, 1983
- Ph.D. University of Illinois at Urbana-Champaign, IL, 1989

ACADEMIC EXPERIENCE

- 2006 to Present Chancellor's Professor, UC Irvine, Full-time
- 1998 to 2006 Professor, UC Irvine, Full-time
- 1994 to 1998 Associate Professor, UC Irvine, Full-time
- 1989 to 1994 Assistant Professor, UC Irvine, Full-time

NON-ACADEMIC EXPERIENCE -- none

CERTIFICATIONS AND PROFESSIONAL REGISTRATIONS - none

CURRENT MEMBERSHIPS IN PROFESSIONAL ORGANIZATIONS

IEEE, ACM, IFIP

HONORS AND AWARDS

- Chancellor's Professor, University of California at Irvine, Nov 2006 – present
- ACM Distinguished Scientist, 2007
- IEEE Fellow, 2008
- Best Paper Awards (7): IJCNN'09, ASPDAC'06, CNCC'2006, CODES+ISSS '03, VLSI-DESIGN'03, CHDL'91, CHDL'89
- Best Paper Award Nominations (5): DATE-2012, CODES+ISSS 2011, VLSID 2006, DAC 2005, WASP 2004
- "The Most Influential Papers of 10 Years of DATE" 2008
- Most Downloaded Paper in ACM TODAES Journal, 1996-2010,
- Top Ten Cited ACM TODAES Journal Articles, 1996-2010, 2010
- ACM Service Awards (4): 2008, 2005, 2001, 1997
- Teaching/Mentoring Awards (4): 2008, 2001, 1997, 1997

INSTITUTIONAL AND PROFESSIONAL SERVICE (in the last five years):

- Vice Chair, Department of CS, U.C. Irvine, July 2011-June 2012
- Acting Chair, Department of CS, U.C. Irvine, April 2009-June 2009
- Advisory Board Member: ACM SIGDA (1993-2009)
- Editor-in-Chief, ACM Transactions on Design Automation of Electronic Systems (TODAES), July 2004 – June 2008
- Associate Editor, ACM Transactions on Embedded Computer Systems (TECS), September 2003 – present
- Associate Editor, IEEE Transactions on VLSI Systems (T-VLSI), 1999–2001, 2007-

SELECTED PUBLICATIONS AND PRESENTATIONS from the past five years

Articles, Journal

- Tanimura and Dutt, "Homogeneous Dual-Rail Logic for DPA Attack Resistant Secure Circuit Design," IEEE Embedded Systems Letters (IEEE-ESL), Vol. 4, Issue 3, September 2012.
- Richert, Moorkanikara, Dutt, Krichmar, "An Efficient and Flexible Simulation Environment for Modeling Large-Scale Cortical Processing", Frontiers in Neuroinformatics, vol. 5, Sep 2011.
- Lee, Choi, Dutt, "Mapping Multi-Domain Applications onto Coarse-Grained Reconfigurable Architectures", IEEE Transactions on Computer-Aided (TCAD), vol. 30, pp. 937-650, Sep 2011.
- Lee, Shrivastava, Issenin, Dutt, "Partially Protected Caches to Reduce Failures due to Soft Errors in Multimedia Applications", IEEE Transactions on VLSI, vol. 17, pp. 1343-1347, Sep 2009
- Reshadi, Mishra, Dutt, "Hybrid Compiled Simulation: An efficient technique for instruction-set architecture simulation", ACM Transactions on Embedded Computing Systems, September 2009.
- Mohapatra, Dutt, Nicolau, Venkatasubramanian, "DYNAMO: A Cross-Layer Framework for End-to-End QoS and Energy Optimization in Mobile Handheld Devices", IEEE Journal on Selected Areas in Communications, vol. 25, pp. 722-737, May 2007.

Books, Authored

- N. D. Dutt, P. Mishra, Processor Description Languages: Applications and Methodologies. Morgan Kaufman/Elsevier Systems-on-Silicon Series, 2008.
- N. D. Dutt, S. Pasricha, On-chip Communication Architectures: Current Practice, Research and Future Trends. Morgan Kaufman/Elsevier Systems-on-Silicon Series, 2008.

Conference/Workshop/Symposium Proceedings

- L. Bathen, N. Dutt, HaVOC: A Hybrid-Memory-aware Virtualization Layer for On-Chip Distributed ScratchPad and Non-Volatile Memories In Proc. 49th DAC 2012.
- M. Avery, J. Krichmar, N. Dutt, Spiking Neuron Model of Basal Forebrain Enhancement of Visual Attention In Proc. IJCNN 2012.
- N. D. Dutt, Design Methodology for Memory-aware NoC Exploration and Design In Proceedings of the 2008 Conference on Design, Automation and Test in Europe. 2008.
- N. D. Dutt, Quo Vadis, BTSoCs (Billion Transistor SoCs)? In Proceedings of ASPDAC-2008.

PROFESSIONAL DEVELOPMENT ACTIVITIES (in the last five years):

- Steering, Organizing, Technical Program Chair, Track Chair, Program Committee member for the following conferences: ASPDAC, DATE, ICCAD, CODES+ISSS, WASP, LCTES, RTSS, RTAS, VLSIDesign, ISLPED, etc.

NAME – Paniz Ebrahimi

EDUCATION

Ph.D., Electrical Engineering, University of Southern California, 2004

M.S., Electrical Engineering, University of Southern California, 2000

B.S., Electrical Engineering, Sharif University of Technology, 1996

ACADEMIC EXPERIENCE

UC Irvine, Lecturer, 2009-present (on and off)

University of Southern California, Research Associate, 2006–2007

University of Southern California, Post-Doctoral Researcher, 2005–2006

University of Southern California, Research Assistant, 1999-2004

University of Southern California, Teaching Assistant, 1998-2004

Sharif University of Technology, Research Assistant, 1996-1997

Sharif University of Technology, Teaching Assistant, 1993-1995

NON-ACADEMIC EXPERIENCE

Middle school Algebra teacher at the Neighborhood Academic Initiative at USC, 2003-2004

Member of USC's International Student's Assembly, 1999-2000

Co-founder of "NOJABA" club, an archeological and astronomical travel club, 1993

CERTIFICATIONS AND PROFESSIONAL REGISTRATIONS - none

CURRENT MEMBERSHIPS IN PROFESSIONAL ORGANIZATIONS - none

HONORS AND AWARDS

Two issued Patents:

- Compensation for polarization-mode dispersion in multiple wavelength-division multiplexed channels without separate composition for each individual channel, US patent #6,603,890
- Polarization-mode dispersion emulator, US patent #6,542,650

Research paper ranked 1st, upgraded to invited lecture, Conference on Lasers and Electro-Optics, 2002

Research Paper ranked 1st among 64 papers submitted to the amplifier committee of the Conference on Lasers and Electro-Optics, CLEO-2001

Outstanding Academic Achievement Award, Association of Professors and Scholars of Iranian Heritage, 2000

Outstanding Leadership Award, Office of international students, 2000

Gold Medal in Iranian national student chess competition championship awards, 1995 (Silver, 1993; Bronze, 1994)

Letter of Honor from Dean of Physics Department, for building Hertz' antenna, 1993

Letter of Honor from Vice President of Sharif University of Technology, 1993

SERVICE ACTIVITIES within UNIVERSITY OF CALIFORNIA

Faculty host in annual pancake breakfast, 2009

SERVICE ACTIVITIES outside UNIVERSITY OF CALIFORNIA

Technical Reviewer, IEEE Journal of Selected Topics in Quantum Electronics (JSTQE)

Technical Reviewer, IEEE Journal of Lightwave Technology (JLT)

Technical Reviewer, IEEE Photonic Technology Letters (PTL)

SELECTED PUBLICATIONS AND PRESENTATIONS from the past five years:

Jones, R.; Doylend, J.; Ebrahimi, P.; Ayotte, S.; Raday, O and Cohen, O, "Silicon photonic tunable optical dispersion comensator," Optics Express, Vol. 15, Issue 24, pp. 15836-15841, (2007).

Arbab, V. R.; Saghari, P.; Haghi, M.; Ebrahimi, P. and Willner, A.E., "Increasing the bit rate in OCDMA systems using pulse position modulation techniques," Optics Express, Vol. 15 Issue 19, pp.12252-12257 (2007).

Ebrahimi, P.; Jones, R; Wang, Y; Yan, L; Mader, T; Paniccia, M; Willner, A E and Paraschis, L., "A 10-Gbit/s EML link using detuned narrowband optical filtering," Optics Express, Vol. 15 Issue 17, pp.10597-10606 (2007).

Willner, A.E.; Saghari, P.; Arbab, V.; Haghi, M.; Kumar, S and Ebrahimi, P., "Advances in Time-Wavelength 2-D Asynchronous Multi-User OCDMA Systems," Invited Paper, IEEE Journal of Selected Topics in Quantum Electronics, Special Issue on Optical Code in Optical Communications and Networks, vol. 13, (2007).

PROFESSIONAL DEVELOPMENT ACTIVITIES

Attended the yearlong Future Professoriate Program, with Center for Excellence in teaching at USC.

NAME - Magda El Zarki

EDUCATION

Ph.D, Electrical Engineering, Columbia University, 1988

M.S., Electrical Engineering, Columbia University, 1981

B.S., Electrical Engineering, Cairo University, 1979

ACADEMIC EXPERIENCE

UC Irvine, Professor, 1999-present, Full-time

Univ. of Pennsylvania, Associate Professor, 1994-1999, Full-time

Univ. of Pennsylvania, Assistant Professor, 1988-1994, Full-time

NON-ACADEMIC EXPERIENCE

Fulbright Scholar, Cairo, Egypt, October 1996 - February 1997

Delft University of Technology, Delft, The Netherlands, summers May 1993 - December 1995

Citibank NA, New York, NY, June 1981 - May 1983

CERTIFICATIONS AND PROFESSIONAL REGISTRATIONS - none

CURRENT MEMBERSHIPS IN PROFESSIONAL ORGANIZATIONS

IEEE – Senior Member

HONORS AND AWARDS

- Best Paper Award - IEEE Personal, Indoor & Mobile Radio Conf. (PIMRC)'94, The Hague, The Netherlands, September 1994.

- “Cor Wit” Term Chair at Delft University of Technology, Delft, The Netherlands, August 2005 – December 2006.

- Best Paper Award – First Place - 3rd IEEE Consumer Communications and Networking Conference (CCNC06), Las Vegas, NV, January 8-10, 2006.

- Celebration of Teaching, Dean’s Honoree, School of ICS

SERVICE ACTIVITIES within UNIVERSITY OF CALIFORNIA

Vice Chair for Graduate Affairs, July 2000 – 02

Member of Search Committee for CAL-(IT)2 Directorship 2003

Member of Council on Budget and Planning June 2003 – 2006

Director of Computer Science and Engineering Program 2004

Director of Networked Systems Program 2005 – 2007

Associate Dean of Research ICS 2008 – 2012

Director of Center for Computer Games and Virtual Worlds 2009 – present

Chair Steering Committee Computer Game Science 2010 - present

SERVICE ACTIVITIES outside UNIVERSITY OF CALIFORNIA

Editorial Board: Ad Hoc Networks, Elsevier Publ. (2003 – 05), Wireless Personal Comm., Kluwer Acad. Publ. (93 – present), Wireless Networks, ACM Press/Kluwer Academic Publ. (93 - present), Computer Networks and ISDN, Elsevier Publ. (93 - 1999), Transactions on Networking, IEEE/ACM (95 - 2000)

Board of Governors, IEEE Communications Society (Jan. 95 - Dec. 97)

Member of IEEE Communications Society Awards Committee – 2003 - 05

Conference Coordinator for IEEE TCCC (91-93)

Secretary of IEEE TCCC (93 - 95)

Vice Chair of IEEE TCCC (95 - 97)

Technical Program Chair - IEEE INFOCOM 94

Vice Technical Program Chair - IEEE INFOCOM 93

Co-Technical Program Chair - ACM MOBICOM 98, ICNP 01, MobiMedia 07

Chair Packet Video Workshop 2004, IEEE Computer Communications Workshop (CCW) 2005

Co-Chair Personalized Networks Workshop (PerNets) 2006

Tutorial Chair - IEEE INFOCOM 91, ACM SIGCOMM 90

Tutorial Co-Chair – ACM Mobicom 2006

Technical Program Committee – Conferences sponsored by IEEE, ACM, etc.

SELECTED PUBLICATIONS AND PRESENTATIONS from the past five years:

1. “An Adaptive Delay and Synchronization Control Scheme for Wi-Fi Based Audio/Video Conferencing,” Haining Liu, and Magda El Zarki, ACM Press/Kluwer Academic Wireless Networks (WINET), Special Issue on Wireless QoS Support, 2005.
2. “Adaptive Delay and Synchronization Control for Wi-Fi Based Mobile AV Conferencing,” Haining Liu and Magda El Zarki. Kluwer Academic Wireless Personal Communications, Special Issue on Advances on Wireless LANs and PANs, 2005.
3. “Quality Adapted Backlight Scaling (QABS) for Video Streaming to Mobile Handheld Devices,” Liang Cheng, Stefano Bossi, Shivajit Mohapatra, Magda El Zarki, Nalini Venkatasubramanian, and Nikil Dutt, in Lecture Notes in Computer Science, Springer-Verlag Publ., vol. 3420, pp. 662, 2005.
4. “Proposal for a Cross Layer scheme for Real Time Wireless Video,” Arulsaravana Jeyaraj, Liang Cheng, Magda El Zarki, Journal of Zhejiang Univ. SCIENCE A, Springer-Verlag Publ., Vol. 7, 2006.
5. “Adaptive Techniques For Robust Real-Time Video Communications,” Liang Cheng and Magda El Zarki, Adaptation Techniques in Wireless Multimedia Networks, editors Wei Li and Yang Xiao, published by Nova Science Publ. Inc., Hauppauge, NY 11788-3619, 2006.

NAME - Ahmed Eltawil

EDUCATION

Ph.D., Integrated Circuits and systems, University of California, Los Angeles, 2003

M.S., Electronics and Communication Engineering, Cairo University, 1999

B.S., Electronics and Communication Engineering, Cairo University, 1997

ACADEMIC EXPERIENCE

UC Irvine, Associate Professor, 2010-present

UC Irvine, Assistant Professor, 2005-2010

University of California, Los Angeles, Department of Electrical Engineering, Research Engineer,
2003-2005

University of California, Los Angeles, Department of Electrical Engineering, Ph.D. Research,
1998-2001

NON-ACADEMIC EXPERIENCE

Consultant to several companies including Broadcom, Interdigital, Silvus Communications,
Newport Media, Emulex among others

Innovics Wireless, Director of VLSI Engineering, 2002-2003

Innovics Wireless, Senior Design Engineer, 2001-2002

CERTIFICATIONS AND PROFESSIONAL REGISTRATIONS - none

CURRENT MEMBERSHIPS IN PROFESSIONAL ORGANIZATIONS

Association of Public Safety communications Officials (APCO), Member, 2006-present

Institute of Electrical and Electronics Engineers (IEEE), Member, 1996-present

HONORS AND AWARDS

Recipient of the National Science Foundation CAREER award, 2010

Honored as Boeing Distinguished External Researcher and Scholar

Nominated for Engineering Professor of the Year Award, UCI student council, 2006-2009

Nominated for best paper award, IEEE International Symposium on Quality Electronics
“ISQED07”, 2007

Henry Samueli Faculty Fellow, January 2005-December 2007

Best Paper Award, IEEE International Symposium on Quality Electronics “ISQED06”, 2006

Recipient of the Henry Samueli Excellence in Teaching Award, School of Engineering,
University of California, Los Angeles, 2001

SERVICE ACTIVITIES within UNIVERSITY OF CALIFORNIA

Member, Campus-wide Honors Program Committee, 2006-2008

Representative of School of Engineering at the Campus-Wide Honors Program for community
outreach (2006-2007).

Faculty member of CAMP, MESA and UROP which are state and local programs designed as
outreach activities to engage undergraduates, particularly women and minorities.

Established state of the art wireless experimental lab at UC Irvine.

SERVICE ACTIVITIES outside UNIVERSITY OF CALIFORNIA

Technical committee member on several conferences and professional meetings including ICCAD(07,08,09), ISQED(06,07,08,09,10), VLSI-DAT(06,07,08), ICC(10) among others.

Reviewer for multiple IEEE journals and conferences, including TVLSI, TCASI & II, JSAC and JSSC etc.

Active in industry outreach via tutorials (4 since 2005) and invited talks at prestigious companies, including IBM, LSI, Intel, Broadcom etc.(over 40 since 2005).

Participated in several multi university/industry initiatives and panels by Department of Justice (DOJ) to identify new technologies for low-power cognitive radios to support mission critical public safety personnel.

Chair, IEEE International Symposium on Quality Electronics ISQED '07, 2007

Chair, IEEE Wireless Communications and Networking Conference (WCNC'06), June 3, 2006 - June 6, 2006

SELECTED PUBLICATIONS AND PRESENTATIONS from the past five years

Articles, Journal

Amin Khajeh, Minyoung Kim, Nikil Dutt, Ahmed M. Eltawil, Fadi J. Kurdahi, "Error-aware Algorithm/Architecture Co-exploration for Video Over Wireless Applications" *ACM Transactions on Embedded Computing Systems*, (*Accepted November 2009*)

A. Khajeh, K. Amiri, M.S. Khairy, A. Eltawil, and F.J. Kurdahi, "A Unified Hardware and Channel Noise Model for Communication Systems," *IEEE Globecom 2010 - Communications QoS, Reliability and Modelling Symposium (GC10 - CQRM)*, 2010.

M.S. Khairy, A. Khajeh, A. Eltawil, and F.J. Kurdahi, "FFT Processing Through Faulty Memories in OFDM based Systems," *IEEE Globecom 2010 Workshop on Application of Communication Theory to Emerging Memory Technologies (ACTEMT 2010)*.

F. Ge, H. Lin, A. Khajeh, J. Chiang, A. Eltawil, C. Bostian, W. chun Feng, and R. Chadha, "Cognitive Radio Rides on the Cloud," *The 2010 Military Communications Conference - Unclassified Program - Networking Protocols and Performance Track (MILCOM 2010-NPP)*, 2010.

A. Khajeh, A.M. Eltawil, and F.J. Kurdahi, "Effect of body biasing on embedded SRAM failure," *Proc. IEEE Int Circuits and Systems (ISCAS) Symp*, 2010, pp. 2350–2353.

Conference/Workshop/Symposium Proceedings

Designing Reliable Systems using Unreliable Components, Design Automation and Test in Europe Conference (DATE 2009), Nice, France, April 2009.

Cross-Layer Approaches to Designing Reliable Systems using Unreliable Chips, 13th Asia and South Pacific Design Automation Conference (ASPDAC), Seoul, South Korea, January 2008.

PROFESSIONAL DEVELOPMENT ACTIVITIES - none

NAME — David Eppstein

EDUCATION

Ph.D, Computer Science, Columbia University, 1989
M.S., Computer Science, Columbia University, 1985
B.S. with distinction, Mathematics, Stanford University, 1984

ACADEMIC EXPERIENCE

UC Irvine, Professor, 1998–present, Full-time
UC Irvine, Associate Professor, 1994–1998, Full-time
UC Irvine, Assistant Professor, 1990–1994, Full-time
Xerox Palo Alto Research Center, postdoctoral researcher, 1989–1990, Full-time

NON-ACADEMIC EXPERIENCE

Disney Feature Animation, consultant, algorithms for 3d modeling, 2007–2009
Aleks Corp., consultant, algorithms for automated assessment of learning, 2006

CERTIFICATIONS AND PROFESSIONAL REGISTRATIONS — none

CURRENT MEMBERSHIPS IN PROFESSIONAL ORGANIZATIONS

Association for Computing Machinery
Institute for Operations Research and the Management Sciences

HONORS AND AWARDS

ACM Fellow, 2012

SERVICE ACTIVITIES within UNIVERSITY OF CALIFORNIA

Director, Bren School Center for Algorithms & Theory of Computation, 2010–present
Co-Chair, Computer Science Department, 2003–2005 and 2008–2010
Member, UC Irvine Council on Educational Policy, 2006–2010
Chair, UCI CEP Subcommittee on Policy, 2008–2010

SERVICE ACTIVITIES outside UNIVERSITY OF CALIFORNIA

Editorial boards: J. Algorithms, 1994–2004; Chicago J. Theor. Comp. Sci., 1994–present; SIAM J. Comput., 1995–2004; J. Graph Algorith. & Appl., 1995–2009. ACM Trans. Algorith., 2004–2008.

Guest editor: J. Comp. Sys. Sci., Algorithmica, J. Complexity, Discrete Comput. Geom., J. Algorithms, J. Graph Algorithms & Applications.

Program committees: ACM Symp. Comp. Geom. (1995, 1999, 2012, video track 2010), ACM Symp. Th. Comput. (1994, 2000, 2003, 2006, 2009); ACM-SIAM Symp. Discrete Alg. (1996, 2000, 2011); Symp. Algorith. & Data Struc. (1997, 2007); Computing and Combin. (1999,

2012); IEEE Symp. Found. Comp. Sci. (1993, 2001, 2008); Int. Coll. Automata, Languages & Programming (2005, 2008); Int. Symp. Algorith. Comput. (1998); Graph Drawing (2006, 2008, 2010, 2012); Int. Conf. Fun With Algorithms (2012); Scand. Symp. Algorithm Theory (2012).

Program chair: ACM Symp. Comp. Geom. (2001), ACM-SIAM Symp. Discrete Alg. (2002); NSF Worksh. Computational Topology (1999).

Steering committee: Eur. Symp. Algorithms (2008–2012), Graph Drawing (2008–present).

Moderator for cs.DS (data structures and algorithms), arXiv.org, 2006–present.

Administrator on English-language Wikipedia, 2007–present.

SELECTED PUBLICATIONS AND PRESENTATIONS from the past five years:

Media Theory: Interdisciplinary Applied Mathematics (with J.-C. Falmagne and S. Ovchinnikov), Springer-Verlag, 2007, ISBN 978-3-540-71696-9.

Studying (non-planar) road networks through an algorithmic lens (with M. T. Goodrich), ACM GIS, 2008, Article 16. (Winner, best paper award.)

Optimal embedding into star metrics (with K. Wortman), Symp. Alg. & Data Struc., LNCS 5664, Springer-Verlag, 2009, pp. 290-301. (Winner, best paper award.)

Graph-theoretic solutions to computational geometry problems, invited lecture at WG 2009.

Steinitz theorems for orthogonal polyhedra (with E. Mumford), ACM Symp. Comp. Geom., 2010, pp. 429-438.

Listing all maximal cliques in sparse graphs in near-optimal time (with M. Löffler and D. Strash), Int. Symp. Alg. and Comput., LNCS 6506, Springer-Verlag, 2010, pp. 403-414.

Regular labelings and geometric structures, invited lectures at CCCG 2010 and ISAAC 2010.

Succinct greedy geometric routing using hyperbolic geometry (with M. T. Goodrich), IEEE Transactions on Computing 60 (11): 1571-1580, 2011.

What's the difference? Efficient set reconciliation without prior context. (with M. T. Goodrich, F. Uyeda, and G. Varghese), ACM SIGCOMM, 2011.

Planar Lombardi drawings for subcubic graphs, Int. Symp. Graph Drawing, 2012. (Winner, best paper award.)

PROFESSIONAL DEVELOPMENT ACTIVITIES — none

NAME - Jeffrey Foresta

EDUCATION

B.A., UC Santa Barbara, Physics and Music Education, 1980

California State University, Long Beach, Graduate Studies, Teaching Credential, 1982

ACADEMIC EXPERIENCE

UC Irvine, Lecturer, 2001-present, The Henry Samueli School of Engineering

UC Irvine, Lecturer, 2006-present, Bren School of Information and Computer Sciences

NON-ACADEMIC EXPERIENCE

Abbot Medical Optics, Inc., Product Development Engineer / Technical writer 2006-present

TROY Systems Inc., Senior Technical Writer, 1998-2006

Sorin Biomedical, Inc., Contract Technical Writer, 1997

Baxter Diagnostics Inc., Senior Technical Writer, 1987-1996

CERTIFICATIONS AND PROFESSIONAL REGISTRATIONS - none

CURRENT MEMBERSHIPS IN PROFESSIONAL ORGANIZATIONS

- Member, Society for Technical Communication (STC), 2005-present
- Member, Association of Teachers of Technical Writing (ATTW), 2005-present
- Member, Modern Language Association (MLA), 2005-present

HONORS AND AWARDS

- Instructor's Award, UCI Campus Writing Coordinator's Competition, 2004

SERVICE ACTIVITIES within UNIVERSITY OF CALIFORNIA

- Mentored new instructors for ENGR 190W (Jessica Scully, Punyatoya Mohapatra , Bojan Petrovic, Stephen Bach and Sam Sabin) and performed in-class visitations
- Assisted with the development of ABET-based measurement tools for ENGR 190W
- Presented an overview of the ABET student outcome assessment process to the CSE Steering Committee
- Met with ABET auditors on two occasions in support of ENGR 190W course assessment
- Provided written recommendations for aligning the ABET student outcomes with the scoring rubric (CSE 181CW and ENGR 190W)
- Provided written observations to the CSE Steering Committee regarding the challenges of losing student project team members as they transition from CSE 181B to CSE 181CW.
- Participated in a 2-day faculty assessment of upper-division writing held by the Campus Writing Coordinator and the Department of Undergraduate Education Assessment and Research Studies, Summer 2009
- Participated in the lecturer review process under the direction of John LaRue, August 2005
- Participated in the CSE Advising Session for CSE 90, Winter 2006 and Winter 2007
- Attend the Campus Writing Coordinator's quarterly meetings for upper-division writing

SERVICE ACTIVITIES outside UNIVERSITY OF CALIFORNIA - none

SELECTED PUBLICATIONS AND PRESENTATIONS from the past five years

- Presented a lecture on Conducting Responsible Research to the Speechcraft Workshop students under the direction of Iris Adam, Fall 2009
- Presented a lecture on Best Practices for Teaching Upper-Division Writing at the Upper-Division Writing Colloquy, October 2009
- Presented guest lectures to Senior Design students on Engineering Standards and Conducting Responsible Research, Fall 2006-present

PROFESSIONAL DEVELOPMENT ACTIVITIES

- Attended faculty development workshop, Tips and Tricks in the Teaching of Writing, January 2012
- Attended faculty development workshop, Using Turnitin Effectively: Beyond Policing Text, October 2012
- Attended faculty development workshop, Designing Multimedia Assignments, October 2012
- Attended faculty development workshop, Writing Across the Curriculum, November 2012

NAME - Charless C. Fowlkes

EDUCATION

Ph.D., Computer Science, University of California, Berkeley, 2005

B.S., Engineering and Applied Science, California Institute of Technology, 2000

ACADEMIC EXPERIENCE

UC Irvine, Assistant Professor, 2007-present, full-time

Lawrence Berkeley National Labs, Postdoctoral Fellow, 2005-2007, full-time

NON-ACADEMIC EXPERIENCE - none

CERTIFICATIONS AND PROFESSIONAL REGISTRATIONS - none

CURRENT MEMBERSHIPS IN PROFESSIONAL ORGANIZATIONS - none

HONORS AND AWARDS

Marr Prize, 2009

NSF Graduate Research Fellowship, 2002-2005

UC MICRO Fellowship 2000-2001

SERVICE ACTIVITIES within UNIVERSITY OF CALIFORNIA

ICS Computer Game Science Steering Committee, 2010-present

CS Graduate Admissions Committee, 2007-2010

CS Chair Search Committee, 2010

CS chair advisory committee 2011-2012

SERVICE ACTIVITIES outside UNIVERSITY OF CALIFORNIA

Organizer, Southern California Computer Vision Meetup, 2007-2012

Area Chair, IEEE Conf. on Computer Vision and Pattern Recognition , 2010,2012

Computer Vision Chair, International Symposium on Visual Computing, 2012

Program Committee member, IEEE Conf. on Comp. Vision and Pattern Recognition, 2006-2011

Program Committee member, IEEE International Conf. on Computer Vision, 2007,2009

Program Committee member, European Conf. on Computer Vision, 2008,2010,2012

Program Committee member, Conf. on Neural Information Processing Systems, 2008-2010

SELECTED PUBLICATIONS AND PRESENTATIONS from the past five years:

J. Yarkony, A. Ihler, C. Fowlkes, "Fast Planar Correlation Clustering for Image Segmentation", Proc. European Conference on Computer Vision, Firenze, Italy (Oct. 2012).

Y. Yang, S. Hallman, D. Ramanan, C. Fowlkes, "Layered Object Models for Image Segmentation", TPAMI, 34(9):1731-1743, 2011.

J. Henggenius, M. Gribskov, A. Rundell, C. Fowlkes, D. Umulis, "Analysis of Gap Gene Regulation in a 3D Organism-Scale Model of the *Drosophila melanogaster* Embryo", PLoS ONE 6(11): e26797. doi:10.1371/journal.pone.0026797, 2011.

C. Fowlkes, K. Eckenrode, M. Bragdon, M. Meyer, Z. Wunderlich, L. Simirenko, C. Hendriks, S. Keranen, C. Henriquez, M. Biggin, M. Eisen, A. DePace, "A conserved developmental patterning network produces quantitatively different output in multiple species of *Drosophila*," PLoS Genetics, 7(10): e1002346, 2011.

J. Yarkony, R. Morshed, A. Ihler, C. Fowlkes. "Tightening MRF Relaxations with Planar Subproblems", UAI, Barcelona, Spain (July 2011).

J. Yarkony, A. Ihler, C. Fowlkes. "Planar Cycle Covering Graphs", UAI, Barcelona, Spain (July 2011).

C. Desai, D. Ramanan, C. Fowlkes. "Discriminative models for multi-class object layout", International Journal of Computer Vision, 95(1), p. 1-12. 2011

J. Burge, C. Fowlkes, M. Banks, "Natural-scene statistics predict how the figure-ground cue of convexity affects human depth perception", Journal of Neuroscience, 30(21):7269-7280, 2010

P. Arbelaez, M. Maire, C. Fowlkes, J. Malik, "Contour Detection and Hierarchical Image Segmentation", IEEE TPAMI, 33(5), 2011

C. Desai, D. Ramanan, C. Fowlkes. "Discriminative models for multi-class object layout", Proc. IEEE Int. Conf. on Computer Vision, 2009

C. Fowlkes, C. Luengo Hendriks, S. Keranen, G. Weber, O. Rubel, M-Y Huang, S. Chatoor, A. DePace, L. Simirenko, C. Henriquez, A. Beaton, R. Weiszmann, S. Celniker, B. Hamann, D. Knowles, M. Biggin, M. Eisen, J. Malik "A quantitative spatio-temporal atlas of gene expression in the *Drosophila* blastoderm", Cell, 133(2), p. 364-374, 2008.

X. Ren, C. Fowlkes, J. Malik, "Learning Probabilistic Models for Contour Completion in Natural Images", International Journal of Computer Vision, 77(1), p.47-63, 2008.

RECENT PROFESSIONAL DEVELOPMENT ACTIVITIES - none

Name: Michael Franz

EDUCATION

ETH Z'urich, Switzerland: Dipl. Informatik-Ing. (Engineer in Computer Science), May 1989.

ETH Z'urich, Switzerland: Doctor of Technical Sciences (in Computer Science), February 1994.

Dissertation Title: "Code-Generation On-the-Fly: A Key to Portable Software."

Advisor: Niklaus Wirth.

ACADEMIC EXPERIENCE

2007 – present Full Professor of Electrical Engineering & Computer Science (by courtesy) The Henry Samueli School of Engineering University of California, Irvine

2006 – present Full Professor of Computer Science (with tenure)

2001 – 2006 Associate Professor of Information & Computer Science (with tenure)

1996 – 2001 Assistant Professor of Information & Computer Science

The Donald Bren School of Information & Computer Sciences University of California, Irvine

1994 – 1995 Senior Research Associate and Lecturer

Institut für Computersysteme, ETH Z'urich, Switzerland.

NON-ACADEMIC EXPERIENCE-None

CERTIFICATIONS AND PROFESSIONAL REGISTRATIONS – none

CURRENT MEMBERSHIPS IN PROFESSIONAL ORGANIZATIONS

HONORS AND AWARDS

Distinguished Scientist, Association for Computing Machinery (ACM).

Senior Member, The Institute of Electrical and Electronics Engineers (IEEE).

Major Professional Honors

National Science Foundation CAREER Award, 1997.

Fulbright Scholarship, 1989.

University of California, Irvine, Distinguished Mid-Career Faculty Award for Research, 2010.

This is the Academic Senate's highest honor for research. One such award at most is given yearly to an Assistant Professor, one to an Associate or Full Professor Step I-IV (the "Mid-Career Award"), and one to a Professor Step V or higher.

Dean's Award for Graduate Student Mentoring, Donald Bren School of Information and Computer Sciences, UC Irvine, 2007.

Outstanding Professor of the Year Award, Graduating Class of 2007, UC Irvine.

Noteworthy Contribution I am the co-inventor (with my former Ph.D. student Andreas Gal) of the (patent pending) "Trace Tree" compilation technique, which has been transitioned successfully from academic research into one of the most widely distributed open-source projects. From version 3.5 onwards, the JavaScript engine in Mozilla's Firefox browser is based directly on my academic research. Approximately one Billion people use this software daily.

SERVICE ACTIVITIES within UNIVERSITY OF CALIFORNIA-none

SERVICE ACTIVITIES outside UNIVERSITY OF CALIFORNIA

Journal Editorial Board Member: Software—Practice and Experience (SPE), Computer Science—Research and Development (CSR D). Program Chair: 26th Annual Computer Security Applications Conference (ACSAC 2010), Austin, Texas; December 2010. 237 submitted papers, 39 accepted. Program co-Chair: 25th Annual Computer Security Applications Conference (ACSAC 2009), Honolulu, Hawaii; December 2009. Program Committee Member: 27th Annual Computer Security Applications Conference (ACSAC 2011), Orlando, Florida; December 2011; 6th Workshop on Programming Languages and Operating Systems (PLOS 2010), Cascais, Portugal; October 2011; 2011 New Security Paradigms Workshop (NSPW 2011), Sonoma, California; September 2011; 4th International Conference on Trust and Trustworthy Computing (TRUST 2011), Pittsburgh, Pennsylvania; June 2011; ACM Sigplan Conference on Programming Language Design and Implementation (PLDI 2011), San Diego, California; June 2011; 5th International Multidisciplinary Conference on e-Technologies (MCETECH 2011), Les Diablerets, Switzerland; January 2011; 19th ACM/IEEE/IFIP International Conference on Parallel Architectures and Compilation Techniques (PACT 2010), Vienna, Austria; September 2010; 2010 IEEE International Conference on Privacy, Security, Risk and Trust (PASSAT-10), Minneapolis, Minnesota; August 2010; ACM SIGPLAN/SIGBED Conference on Languages, Compilers and Tools for Embedded Systems (LCTES 2010), Stockholm, Sweden; April 2010; ACM SIGPLAN/SIGOPS International Conference on Virtual Execution Environments (VEE 2010), Pittsburgh, Pennsylvania; March 2010; International Symposium on Engineering Secure Software and Systems (ESSoS 2010), Pisa, Italy; February 2010; 12th Information Security Conference (ISC 2009), Pisa, Italy; September 2009; 2009 New Security Paradigms Workshop (NSPW 2009), Oxford, United Kingdom; September 2009; 2009 IEEE International Conference on Privacy, Security, Risk and Trust (PASSAT-09), Vancouver, British Columbia, Canada; August 2009; 2009 International Conference on Principles and Practices of Programming in Java (PPPJ'2009), Calgary, Alberta, Canada; August 2009; 47th International Conference on Objects, Models, Components, and Patterns (TOOLS-EUROPE 2009), Zurich, Switzerland, June/July 2009; 4th Montreal Conference on eTechnologies (MCETECH), Ottawa, Canada; May 2009; Compiler Construction 2009 (CC 2009), York, United Kingdom; March 2009; 2008 IEEE Symposium on Security and Privacy, Oakland, California; May 2008; 2008 Annual IEEE Computer Society/ACM International Symposium on Code Generation and Optimization (CGO 2008), Boston, Massachusetts; March 2008; 23rd Annual Computer Security Applications Conference (ACSAC 2007)

SELECTED PUBLICATIONS AND PRESENTATIONS from the past five years:

E. Yardimci and M. Franz; “Mostly Static Program Partitioning of Binary Executables;” in ACM Transactions on Programming Languages and Systems (TOPLAS), Vol. 31, No. 5, Article No. 17; June 2009. doi:10.1145/1538917.1538918

A. Gal, Ch. W. Probst, and M. Franz; “Java Bytecode Verification via Static Single Assignment Form;” ACM Transactions on Programming Languages and Systems (TOPLAS), Vol. 30, No. 4, Article No. 21, pp. 1–21; July 2008. doi:10.1145/1377492.1377496

W. Amme, J. von Ronne, and M. Franz; “SSA-Based Mobile Code: Implementation and Empirical Evaluation;” ACM Transactions on Architecture and Code Optimization (TACO), Vol. 4, No. 2, Article No. 13; June 2007. doi:10.1145/1250727.1250733

PROFESSIONAL DEVELOPMENT ACTIVITIES - none

NAME - Daniel Frost

EDUCATION

Ph.D., Information and Computer Science, University of California, Irvine, 1997.

M.S., Information and Computer Science, University of California, Irvine, 1993.

A.B. *cum laude*, Folklore and Mythology, Harvard University, 1978.

ACADEMIC EXPERIENCE

UC Irvine, Senior Lecturer with Security of Employment, July, 2012 – present.

UC Irvine, Lecturer, 1997 - June, 2012.

NON-ACADEMIC EXPERIENCE

1978–1991: Software engineer and project leader at several companies.

SERVICE ACTIVITIES within UC IRVINE

Chair, Computer Game Science Steering Committee, Fall, 2012.

SERVICE ACTIVITIES outside UC IRVINE

Chair, K-8 Computer Science Curriculum Design Committee, sponsored by the Association for Computing Machinery (ACM) and the Computer Science Teachers Association, 2007–2009.

PUBLICATIONS AND PRESENTATIONS (LAST 5 YEARS)

Frost, D., Fourth Grade Computer Science. In *Proceedings of the 38th ACM Technical Symposium on Computer Science Education*, 2007.

Frost, D., UciGame: A Java Library for Games. In *Proceedings of the 39th ACM Technical Symposium on Computer Science Education*, 2008.

PROFESSIONAL DEVELOPMENT ACTIVITIES - none

NAME - Daniel D. Gajski

EDUCATION

Ph.D., Computer and Information Science, University of Pennsylvania, 1974

ACADEMIC EXPERIENCE

University of California at Irvine, Professor Above Scale, 1987-present

University of Illinois at Urbana-Champaign, Asst. Professor, Assoc. Professor, Professor, 1977-1987

Center for Supercomputing Research and Development at UIUC, Director, 1983-1984

NON-ACADEMIC EXPERIENCE

Burroughs Corporation, Project Engineering, Federal and Special Systems Group, 1974-1976

Ericsson, Senior Engineer, Development Laboratory, 1962-1969

SpecC Technology Open Consortium, Consultant, 2000-2003

CERTIFICATIONS AND PROFESSIONAL REGISTRATIONS - none

CURRENT MEMBERSHIPS IN PROFESSIONAL ORGANIZATIONS

Association of Computing Machinery (ACM), 1978

Institute of Electrical and Electronic Engineers (IEEE), 1977

HONORS AND AWARDS

LifeTime Achievement Award, European Design and Automation Association

Henry Samueli Endowed Chair in Computer System Design, 2003-present

Honorary Doctorate, University of Oldenburg, Germany, 2006

Member, Croatian Academy of Engineering, 2001

SERVICE ACTIVITIES within UNIVERSITY OF CALIFORNIA

Faculty Chair, Electrical Engineering and Computer Science, 2006

Recruiting Committee, Electrical Engineering and Computer Science, 2005

Undergraduate Program Committee, Electrical Engineering and Computer Science, 2004

Henry Samueli Turing Endowed Chair in Computer System Design, 2003-present

Faculty Chair, The Henry Samueli School of Engineering, 2006

Director, Center for Embedded Computer Systems, 1995-present

SERVICE ACTIVITIES outside UNIVERSITY OF CALIFORNIA

Program Committee, CODES/ISSS Conference, 1984-2010

Steering Committee, CODES/ISSS Conference, 2003-2006

SELECTED PUBLICATIONS AND PRESENTATIONS from the past five years

Articles, Journal

R. Doemer, A. Gerstlauer, J. Peng, D. Shin, L. Cai, H. Yu, S. Abdi and D. D. Gajski, "System-on-Chip Environment: A SpecC-Based Framework for Heterogeneous MPSoC Design", *EURASIP Journal for Embedded Systems*, Volume 2008, Article ID 647953, August 2008

P. Coussy, D. D. Gajski, M. Meredith, A Takach, "An Introduction to High-Level Synthesis", Design & Test of Computers, Volume 26, Number 4, July/August 2009

A. Gerstlauer, C. Haubelt, A. D. Pimentel, T. Stefanov, D. D. Gajski and J. Teich, "Electronic System Level Synthesis Methodologies", IEEE TCAD, Vol. 28, No. 10, Oct 2009, pp.1517-1530

S. Abdi, D. D. Gajski, I. Viskic, "Model Based Synthesis of Embedded Software", Journal on Software, Vol. 4, No. 7, September 2009

Books, Chapters

A. Gerstlauer, R. Doemer, J. Peng, and D. D. Gajski, *System-level Design: A Practical guide with SpecC*, Kluwer, Boston 2001, 260 pages (Japanese Edition, SpecC Technology Open Consortium, Japan, June 2001, Chinese Edition, TsingHua University Press, 2008).

D. D. Gajski, S. Abdi, A. Gerstlauer, G. Schirner, *Embedded System Design: Modeling, Synthesis, Verification*, Springer, New York, 2009, 350 pages

Conference/Workshop/Symposium Proceedings

S. Abdi, G. Schirner, I. Viskic, H. Cho, Y. Hwang, L. Yu, and D.D. Gajski, "Hardware-dependent Software Synthesis for Many-Core Embedded Systems", ASP-DAC Conference, Yokohama, Japan, January 19-22, 2009

D. D. Gajski, "System-Level Synthesis: From Specification to Transaction Level Models" International Conference on Communication, Circuits and Systems, San Jose, Ca, July 23-25, 2009

Y. Hwang, G. Schirner, S. Abdi, D. D. Gajski, "Accurate Timed RTOS Model for Transaction level Modeling", DATE Conference, Dresden, Germany, March 8-12, 2010

S. Abdi, Y. Hwang, L. Yu, H. Cho, I. Viskic, D. D. Gajski, "Embedded System Environment", Intl. Symposium on Rapid System Prototyping, Fairfax, Virginia, June 8-11, 2010

I. Viskic, L. Yu, D. D. Gajski, "Design Exploration and Automatic TLM Generation of Khan Process Networks for Multicore Platforms", Conference on Languages, Compilers and Tools for Embedded Systems, Stocholm, Sweden, April 12-16, 2010

PRESENTATIONS

New Strategies for System Level Design, International Symposium on VLSI Design, Automation and Test, Taiwan, April 2006.

PROFESSIONAL DEVELOPMENT ACTIVITIES - none

NAME - Jean-Luc Gaudiot

EDUCATION

Ph.D., Computer Science, University of California, Los Angeles, 1982

M.S., Computer Science, University of California, Los Angeles, 1977

"Diplôme d'Ingénieur" (Electrical Engineering Diploma), École Supérieure d'Ingénieurs en Electronique et Electrotechnique, 1976

ACADEMIC EXPERIENCE

UC Irvine, Professor, 2002-present

University of Southern California, Department of Electrical Engineering Systems, Professor, 1996-2001

University of Southern California, Department of Electrical Engineering-Systems, Associate Professor, 1989-1996

University of Southern California, Department of Electrical Engineering-Systems, Assistant Professor, 1982-1989

NON-ACADEMIC EXPERIENCE

TRW Technology Research Center, Member of Technical Staff, 1980-1982

Teledyne Controls, Software Engineer, March 1979-August 1980

Northrop Grumman Corporation, Pico Rivera, California, Consultant, 1997-2007

Alshuler, Grossman, Stein, and Kahan LLP, Los Angeles, California, 2002-2004

CERTIFICATIONS AND PROFESSIONAL REGISTRATIONS - none

CURRENT MEMBERSHIPS IN PROFESSIONAL ORGANIZATIONS

ACM

ACM Sigarch

IEEE

IEEE Computer Society

IEEE Computer Society Technical Committee on Parallel Processing, Member of the Advisory Board

IEEE Computer Society Technical Committee on Computer Architecture, elected chair in June 2001, re-elected in June 2003

IFIP Working Group 10.3 - Concurrent Systems, Chair from 1995-2001, 1995-present

HONORS AND AWARDS

AAAS Fellow (American Association for the Advancement of Science), 2007

International Federation for Information Processing (IFIP) Silver Core Member, 2007

IEEE Computer Society Golden Core Member, 2003

IEEE Computer Society Meritorious Service Award, 2002

IEEE Fellow, 1999

IEEE Computer Society Distinguished Visitor, 1994-1998

SERVICE ACTIVITIES within UNIVERSITY OF CALIFORNIA

Department Chairperson, Department of Electrical Engineering and Computer Science,
2003-2009

SERVICE ACTIVITIES outside UNIVERSITY OF CALIFORNIA

Chair of the Steering Committee of the International Conference on Parallel Architectures and
Compilation Techniques (PACT), September 2006-present

Editor in Chief, IEEE Computer Architecture Letters, 2006–2009

Member of the Technical Committee on Computer Architecture Advisory Board, 2005-present

Member of the "Conseil de Perfectionnement du Groupe ESIEE (Board of advisors)", 2005 -
present

Permanent member Steering Committee Simpósio Brasileiro de Arquitetura de Computadores e
Processamento de Alto Desempenho (SBAC-PAD), 2005-present

Member, NSF Review panel, 2009

Editor, Special Issue of the Journal of Supercomputing on Secure, Manageable and Controllable
Grid Services, 2009

Member of the Program Committee of the 2009 Simpósio Brasileiro de Arquitetura de
Computadores e Processamento de Alto Desempenho (SBAC-PAD), 2009

Member of the Program Committee of the Secure, Trusted, Manageable and Controllable Grid
Services and Systems Workshop (STMC-Grid'2009), 2009-2009

Member of the Search Committee for the new Editor-in-Chief of IEEE Computer Architecture
Letters, 2009

Editor, Special Issue of the Journal of Supercomputing (NPC 2007), 2008

SELECTED PUBLICATIONS AND PRESENTATIONS from the past five years

Articles, Journal

1. J. Tang, S. Liu, C. Liu, Z. Gu and J-L.Gaudiot, "Acceleration of XML Parsing Through Prefetching," *IEEE Transactions on Computers*, in press.
2. K. Yi, W. W. Ro and J-L. Gaudiot, "Importance of Coherence Protocols with Network Applications on Multi-Core Processors," *IEEE Transactions on Computers*, October 2011.
3. H. Hodayoun, A. Veidenbaum, A. Sasan, and J-L. Gaudiot, "Reducing Power in All Major CAM and SRAM Based Processor Units via Centralized, Dynamic Resource Size Management," *IEEE Transactions on Very Large Scale Integration Systems*, , September 2010.
4. K. Yi and J-L. Gaudiot, "Network Applications on Simultaneous MultiThreading Processors," *IEEE Transactions on Computers*, DOI:10.1109/TC.209.185, Vol. 59, No. 9, pp. 1200-1209, September 2010.
5. S. Liu and J-L. Gaudiot, "Potential Impact of Value Prediction on Communication in Many-Core Architectures," *IEEE Transactions on Computers*, Vol. 58, No. 6, pp. 759-769, June 2009.
6. S.W. Lee and J-L. Gaudiot, "Throttling-Based Resource Management in High Performance Multi-threaded Architectures," *IEEE Transactions on Computers*, Vol. 55, No. 9, pp. 1142-1152, September 2006.

PROFESSIONAL DEVELOPMENT ACTIVITIES - none

NAME - Tony D. Givargis

EDUCATION

Ph.D, Computer Science, University of California, Riverside, 2001

B.S., Computer Science, University of California, Riverside, 1997

ACADEMIC EXPERIENCE

UC Irvine, Associate Dean of Student Affairs, 2011-present

UC Irvine, Professor, 2011-present

UC Irvine, Associate Professor, 2007-2010

UC Irvine, Assistant Professor, 2001-2007

NON-ACADEMIC EXPERIENCE - none

CERTIFICATIONS AND PROFESSIONAL REGISTRATIONS - none

CURRENT MEMBERSHIPS IN PROFESSIONAL ORGANIZATIONS

Institute of Electrical and Electronics Engineers (IEEE)

Association for Computing Machinery (ACM)

Special Interest Group on Design Automation Executive Committee (SIGDA)

HONORS AND AWARDS

ICS Dean's Award for Excellence in Undergraduate Teaching, UC Irvine, 2010

Best Paper, International Conference on Compilers, Architecture, and Synthesis for Embedded Systems (CASES), 2008

SIGDA Technical Leadership Award, American Computing Machinery (ACM), 2007.

Best Paper, American Control Conference (ACC), 2006

Best Paper, ACM Transactions on Design Automation of Electronic Systems (TODAES), 2006

Chancellor's Award for Excellence in Fostering Undergraduate Research, UC Irvine, 2005

Excellence in Teaching Award, Instructional Resource Center/Division of Undergraduate Education, UC Irvine, 2003

SERVICE ACTIVITIES within UNIVERSITY OF CALIFORNIA

University Committee on Computing and Communications (UCCC), 2007-2010

Council on Research, Computing and Library Resources (CORCLR), 2007-2010

Faculty Board for Undecided/Undeclared Students: A Board of the Council on Educational Policy, 2003-2007 (chair)

Task Force on the CS Major, 2010-2011 (chair)

Computer Science Chair Recommendation Committee, 2009-2010

Computing & Network Policy, 2009-2010 (chair)

CS&E Steering Committee, 2003-2006

SERVICE ACTIVITIES outside UNIVERSITY OF CALIFORNIA

International Conference on Computer Aided Design (ICCAD), 2010-present

International Symposium on Low Power Electronics and Design (ISLPED), 2007-present

International Conference on Hardware/Software Codesign and System Synthesis (CODES+ISSS), 2003-present

Online Editor, Odysci, 2010-present

Associate Editor, ACM Transactions on Embedded Computing Systems (TECS), 2008-present

Associate Editor, ACM SIGDA Bimonthly Newsletter, 2005-2007

SELECTED PUBLICATIONS AND PRESENTATIONS from the past five years:

C. Huang, B. Miller, F. Vahid, T. Givargis. Synthesis of Networks of Custom Processing Elements for Real-Time Physical System Emulation. ACM Transactions on Design Automation of Electronic Systems (TODAES), vol. 18, no. 2, pp. 22-42, March 2013.

C. Huang, F. Vahid, T. Givargis. A Custom FPGA Processor for Physical Model Ordinary Differential Equation Solving. IEEE Embedded Systems Letters, vol. 3, no. 4, pp. 113-116, September 2011.

T. Chou, C. Huang, B. Miller, F. Vahid, T. Givargis. An Efficient Compression Scheme for Checkpointing of FPGA-Based Digital Mockups. IEEE/ACM Asian and South Pacific Design Automation Conference (ASP-DAC), pp. 632-637, Yokohama, January 2013. pdf

C. Huang, B. Miller, F. Vahid, T. Givargis. Synthesis of Custom Networks of Heterogeneous Processing Elements for Complex Physical System Emulation. International Conference on Hardware/Software Codesign and System Synthesis (CODES+ISSS), pp. 215-224, Tampere, October 2012.

B. Miller, F. Vahid, T. Givargis. MEDS: Mockup Electronic Data Sheets for Automated Testing of Cyber-Physical Systems Using Digital Mockups. Design Automation and Test in Europe (DATE), pp. 1417-1420, Grenoble, March 2012.

M.A. Ghodrati, T. Givargis, A. Nicolau. Control Flow Optimization in Loops using Interval Analysis. International Conference on Compilers, Architecture, and Synthesis for Embedded Systems (CASES), pp. 157-166, Atlanta, October 2008. Received the 2008 CASES Best Paper Award.

Nacul, T. Givargis. Phantom: A Serializing Compiler for Multitasking Embedded Software. American Control Conference (ACC), pp. 1918-1923, Minneapolis, June 2006. Received the 2006 ACC Best Paper Award.

PROFESSIONAL DEVELOPMENT ACTIVITIES - none

Name - Michael T. Goodrich

EDUCATION

Ph.D. 1987 Efficient Parallel Techniques for Computational Geometry
Computer Sciences, Purdue Univ. (M.J. Atallah, advisor)
B.A. 1983 Mathematics and Computer Science, Calvin College

ACADEMIC EXPERIENCE (all full time)

April '07 to present Chancellor's Professor, Dept. of Computer Science (dept. chair from 7/12)
Univ. of California, Irvine
July '01 to March '07 Professor, Dept. of Computer Science
Univ. of California, Irvine
July '96 to June '02 Professor of Computer Science (on leave, from July '01)
Johns Hopkins Univ.
July '92 to June '96 Associate Professor of Computer Science
Johns Hopkins Univ.
July '87 to June '92 Assistant Professor of Computer Science
Johns Hopkins Univ.

NON-ACADEMIC EXPERIENCE: N.A.

CERTIFICATIONS OR PROFESSIONAL REGISTRATIONS: N.A.

PROFESSIONAL SOCIETY MEMBERSHIPS

American Association for the Advancement of Science (AAAS), Fellow
IEEE and IEEE Computer Society, Fellow
Association for Computing Machinery (ACM), Fellow

HONORS AND AWARDS

- ACM Recognition of Service Award, 1996
- Robert B. Pond, Sr. Award for Excellence in Undergraduate Teaching, Johns Hopkins, 1998
- ACM Distinguished Scientist, 2006
- 2006 IEEE Computer Society Technical Achievement Award
- Fulbright Scholar, 2007, for senior specialist service to University of Aarhus, Denmark
- Fellow of the American Association for the Advancement of Science (AAAS), 2007
- Fellow of the Institute of Electrical and Electronics Engineers (IEEE), 2009
- Fellow of the ACM, 2009

PROFESSIONAL SERVICE

Editorial board member:
Computational Geometry: Theory and Applications, 2006–
Int. Journal of Computational Geometry & Applications, 1993–
Journal of Computer & System Sciences, 1994–
Journal of Graph Algorithms and Applications, 1996–

PUBLICATIONS (Selected from past 5 years)

Books and Monographs:

B-1. M.T. Goodrich and R. Tamassia, *Data Structures and Algorithms in Java*, Fifth Edition, John Wiley and Sons, Inc., 2011.

B-2. M.T. Goodrich and R. Tamassia, *Introduction to Computer Security*, Addison-Wesley, Inc., 2011.

Selected Journal Papers:

J-1. D. Eppstein, M.T. Goodrich, and J.Z. Sun, "Skip Quadrees: Dynamic Data Structures for Multidimensional Point Sets," *Int. Journal on Computational Geometry and Applications* 18(1/2), 131–160, 2008.

J-2. M.T. Goodrich, "Probabilistic Packet Marking for Large-Scale IP Traceback," *IEEE/ACM Transactions on Networking*, 16(1), 15–24, 2008.

J-3. M.T. Goodrich and D.S. Hirschberg, "Improved Adaptive Group Testing Algorithms with Applications to Multiple Access Channels and Dead Sensor Diagnosis," *Journal of Combinatorial Optimization*, 15(1), 95–121, 2008.

J-4. M.T. Goodrich, M. Sirivianos, J. Solis, C. Soriente, G. Tsudik, E. Uzun, "Using Audio in Secure Device Pairing," *Int. J. Security and Networks*, 4(1/2), 57–68, 2009.

J-5. M.T. Goodrich, "On the Algorithmic Complexity of the Mastermind Game with Black-Peg Results," *Information Processing Letters*, 109, 675–678, 2009.

J-6. M.T. Goodrich, R. Tamassia, and N. Triandopoulos, "Efficient Authenticated Data Structures for Graph Connectivity and Geometric Search Problems," *Algorithmica*, 1–48, 2009.

J-7. D. Eppstein, M.T. Goodrich, and D. Strash, "Linear-Time Algorithms for Geometric Graphs with Sublinearly Many Edge Crossings," *SIAM J. on Computing*, 39(8), 2010, 3814–3829.

J-8. D. Eppstein and M.T. Goodrich, "Straggler Identification in Round-Trip Data Streams via Newton's Identities and Invertible Bloom Filters," *IEEE Transactions on Knowledge and Data Engineering*, 23, 297–306, 2011.

J-9. D. Eppstein, M.T. Goodrich, D. Strash, and L. Trott, "Extended Dynamic Subgraph Statistics Using h-Index Parameterized Data Structures," *Theoretical Computer Science*, 447, 44-52, 2012.

Selected Papers in Reviewed Conference Proceedings:

C-1. L. Arge, M.T. Goodrich, M. Nelson, and N. Sitchinava, "Fundamental Parallel Algorithms for Private-Cache Chip Multiprocessors," *Proc. 20th ACM Symp. on Parallelism in Algorithms and Architectures (SPAA)*, 2008, 197–206.

C-2. D. Eppstein and M.T. Goodrich, "Studying (Non-Planar) Road Networks Through an Algorithmic Lens," *Proc. 16th ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems (ACM GIS)*, 2008, 125–134. (Best paper award).

C-3. M.T. Goodrich, "The Mastermind Attack on Genomic Data," *Proc. 30th IEEE Symposium on Security and Privacy (SSP)*, 2009, 204–218.

C-4. M.T. Goodrich, "Randomized Shellsort: A Simple Oblivious Sorting Algorithm," *21st ACM/SIAM Symposium on Discrete Algorithms (SODA)*, 2010, 1262–1277.

C-5. M.T. Goodrich and M. Mitzenmacher, "Anonymous Card Shuffling and its Applications to Parallel Mixnets," *39th International Colloquium on Automata, Languages and Programming (ICALP)*, Springer, LNCS, vol. 6756, 576-587, 2012.

MOST RECENT PROFESSIONAL DEVELOPMENT ACTIVITIES

N.A.

NAME - Michael M. Green

EDUCATION

Ph.D., Electrical Engineering, University of California, Los Angeles, 1991
M.S., Electrical Engineering, University of California, Los Angeles, 1988
B.S., Electrical Engineering, University of California, Berkeley, 1984

ACADEMIC EXPERIENCE

UC Irvine, Chair of the Department of Electrical Engineering & Computer Science, 2009-present
UC Irvine, Professor, 2007-present
UC Irvine, Associate Professor, 1997-2007
Swiss Federal Institute of Technology (EPFL), Professeur Invité, 2006-present
Department of Electrical Engineering, University at Stony Brook, Associate Professor, 1996
Department of Electrical Engineering, University at Stony Brook, Assistant Professor, 1991-1996

NON-ACADEMIC EXPERIENCE

Cypress Semiconductor Corp, Technical Advisory Board Member, 2002-2004
Mead Microelectronics, Inc, Short course instructor, 1996-2001
Newport Communications (now Broadcom Optical Transport Group), Senior Design Engineer, 1999-2001

CERTIFICATIONS AND PROFESSIONAL REGISTRATIONS - none

CURRENT MEMBERSHIPS IN PROFESSIONAL ORGANIZATIONS

ASEE
Eta Kappa Nu
IEEE
Sigma Xi
Tau Beta Pi

HONORS AND AWARDS

Engineering Faculty Member of the Year, UCI Engineering Student Council, 2008
Fariborz Maseeh Best Teaching Award, 2007
Engineering Faculty Member of the Year, UCI Engineering Student Council, 2004
Chancellor's Award for Excellence in Undergraduate Research, 2003
Award for New Technical Concepts in Electrical Engineering, IEEE Region I, 1997

SERVICE ACTIVITIES within UNIVERSITY OF CALIFORNIA

Chair, Dept. of EECS, 2009-present
ABET Lead Faculty for EE Program, 2006-2009
Associate Chair, Dept. of EECS, 2003-2005

SERVICE ACTIVITIES outside UNIVERSITY OF CALIFORNIA

Program Review Committee & Session Chair, Intl. Solid-State Circuits Conference, 2004 - 2010
Guest Editor, IEEE Journal of Solid-State Circuits, 2009

Associate Editor, IEEE Transactions on Circuits & Systems - I, 2003-2005

SELECTED PUBLICATIONS AND PRESENTATIONS from the past five years:

1. X. Gui, X., M. M. Green, "Design of CML Ring Oscillators with Low Supply Sensitivity," to appear in *IEEE Trans. on Circuits and Systems - I*. (accepted for publication Nov. 2012.)
2. P. E. Thoppay, C. Dehollain, M. J. Declercq, M. M. Green, "A 0.24nJ/bit Super-Regenerative Pulsed UWB receiver in 0.18 μ m CMOS," *IEEE Journal of Solid-State Circuits*, vol. 46, pp. 2623-2634, Nov. 2011.
3. J. Cao, S. Huang, M. M. Green, "Non-Idealities in Linear CDR Phase Detectors," *Int. J. of Circuit Theory and Applications*. Published online Oct. 6, 2011. DOI: 10.1002/cta.800
4. L. Li, M. M. Green, "Power Optimization of an 11.75 Gb/s Combined Decision Feedback Equalizer and Clock Data Recovery Circuit in 0.18- μ m CMOS," *IEEE Trans. on Circuits and Systems - I*, vol. 58, pp. 441-450, March 2011.
5. J. Kim, M. M. Green, "Fast Startup of LC VCOs Using Circuit Asymmetries," *Proc. European Conference on Circuit Theory and Design*, pp. 69-72, Aug. 2011.
6. C. De La Cruz-Blas, M. M. Green, "Floating Gate CMOS Ternary Latch," *Electronics Letters*, vol. 46, no. 18, pp. 1260-1262, 2 Sept. 2010.
7. M. Kargar, M. M. Green, "A 10 Gb/s adaptive analog decision feedback equalizer for multimode fiber dispersion compensation in 0.13 μ m CMOS," *Proc. European Solid-State Circuits Conf.*, pp. 550-553, Sept. 2010.
8. A. Momtaz, M. M. Green, "An 80 mW 40 Gb/s 7-Tap T/2-Spaced Feed-Forward Equalizer in 65 nm CMOS," *IEEE Journal of Solid-State Circuits*, vol. 45, Mar. 2010, pp. 629-639.
9. A. Yazdi, M. M. Green, "A 40 GHz Differential Push-Push VCO in 0.18 μ m CMOS for Serial Communication," *IEEE Microwave and Wireless Components Letters*, vol. 19, Nov. 2009, pp. 725-727.
10. P. E. Thoppay, C. Dehollain, M. J. Declercq, M. M. Green, "A multi-band PLL based tuning circuitry for the super-regenerative IR-UWB receiver system," *IEEE Int. Conf. on Ultra-Wideband*, Sept. 2009, pp. 664-668.

PROFESSIONAL DEVELOPMENT ACTIVITIES

Faculty Workshop on Sustainable Assessment Processes, Feb. 2010, Las Vegas

NAME – Ian G. Harris

EDUCATION

PhD Computer Science in January 1997

Title: Microarchitectural Synthesis of Self-Testable VLSI Designs

MS Computer Science December 1991.

Massachusetts Institute of Technology September 1986—June 1990

BS Computer Science June 1990.

ACADEMIC EXPERIENCE

University of California Irvine May 2005—present

Associate Professor of Computer Science

University of California Irvine July 2003—April 2005

Assistant Professor of Computer Science

University of Massachusetts, Amherst September 1997—June 2003

Assistant Professor of Electrical and Computer Eng.

NON-ACADEMIC EXPERIENCE-None

CERTIFICATIONS AND PROFESSIONAL REGISTRATIONS – none

CURRENT MEMBERSHIPS IN PROFESSIONAL ORGANIZATIONS - none

HONORS AND AWARDS

UCI Chancellor's Award for Excellence in Undergraduate Research 2009

UCI Award for Teaching Excellence 2009

SERVICE ACTIVITIES within UNIVERSITY OF CALIFORNIA-none

SERVICE ACTIVITIES outside UNIVERSITY OF CALIFORNIA

Program Co-Chair, IEEE International Conference on Sensor Networks, Ubiquitous, and Trustworthy Computing (SUTC) 2010

Program Co-Chair, IEEE Int'l Conference on Semantic Computing (ICSC) 2010

Steering Committee Member, IEEE North Atlantic Test Workshop (NATW) 2005-2008

Local Arrangements Chair, IEEE VLSI Test Symposium, 2008

SELECTED PUBLICATIONS AND PRESENTATIONS from the past five years:

Dhiraj K. Pradhan and Ian G. Harris eds., Practical Design Verification, Cambridge University Press, 2009.

Ian G. Harris, Thoulfekar Alrahem, Alex Chen, Nick Digiuseppe, Gee Jefferey, Hsiao Shang-Pin, Sean Mattox, Taejoon Park, Saravanan Selvaraj, Albert Tam, and Marcel Carlsson, "Security Testing of Session Initiation Protocol Implementations", ISeCure, The ISC International Journal of Information Security, Vol. 1, No. 2. (July 2009), pp. 91-103.

S. Verma and Ian G. Harris, "SystemVerilog and Vera in a Verification Flow", chapter I in Practical Design Verification, Cambridge University Press, 2009.

Ian G. Harris and Dhiraj Pradhan eds. "Design Verification and Validation", Special Section of IEEE Transactions on VLSI Systems, April 2008.

T. Alrahem, A. Chen, N. DiGiussepe, J. Gee, S.-P. Hsiao, S. Mattox, T. Park, A. Tam, I. G. Harris, and M. Carlsson, "INTERSTATE: A Stateful Protocol Fuzzer for SIP", DEFCON 15, 2007.

F. Fummi, I. G. Harris, C. Marconcini, and G. Pravadelli, "A CLP-based Functional ATPG for Extended FSMs", IEEE Microprocessor Test and Verification Workshop, 2007.

K. Ramineni, I. G. Harris, and S. Verma, "Improving Feasible Interactions Among Multiple Processes", IEEE High Level Design Validation and Test Workshop, 2007.

S. Verma, I. G. Harris, and K. Ramineni, "Automatic Generation of Functional Coverage Models from CTL", IEEE High Level Design Validation and Test Workshop, 2007.

Shireesh Verma, Ian G. Harris, and Kiran Ramineni, "Automatic Generation of Functional Coverage Models from Behavioral Verilog Descriptions", Design Automation and Test in Europe (DATE), April 2007.

PROFESSIONAL DEVELOPMENT ACTIVITIES - none

Name - Wayne Hayes

EDUCATION

Ph.D., Computer Science, University of Toronto, 2001.

M.Sc, Computer Science, University of Toronto, 1995.

B.Sc., Computer Science + Astrophysics, University of Toronto, 1993.

ACADEMIC EXPERIENCE

Visiting Researcher, Dept. of Computer Science, University College London (Summer 2012)

Visiting Fellow, Oxford Centre for Collaborative Applied Mathematics (April–Sept. 2011)

Associate Professor, Computer Science, UC Irvine (July 2010–present)

Lecturer, Department of Mathematics, Imperial College London (1 yr fellowship, Oct. 2009–2010)

Associate Director, UC Irvine Center for Computational Morphodynamics (July 2009–present)

Assistant Professor, Computer Science, UC Irvine (July 2004–June 2010)

Visiting Scientist, *Centre Nationale Reserches Scientifique (CNRS)*, Nantes, France (summer 2008)

Research Associate, Inst. Phys. Sci. & Tech., U. Maryland College Park (Nov. 2002–June 2004)

Research Associate, Fields Inst. for Research in Math. Sci., Toronto (Sept. 2001–Oct. 2002)

Research Associate, Samuel Lunenfeld Research Inst., Toronto (part time, 2001–2002)

Research Graduate Student, Computer Science Dept., Univ. Toronto, (1993–2000)

NON-ACADEMIC EXPERIENCE

Software Engineer, Member of Tech. Staff, Altera Toronto Technology Center (Sep. 2000–Aug 2001)

Software Engineer, Algorithmics. Inc., Toronto (1995)

Software Engineer, IBM Optimizing Compiler Group (1994)

Star Theatre Lecturer, McLaughlin Planetarium, Toronto (1991-1995)

CURRENT MEMBERSHIPS IN PROFESSIONAL ORGANIZATIONS: AAAS, AAS, AMS, CMS, AAUP, IEEE, ACM.

SERVICE ACTIVITIES outside UNIVERSITY OF CALIFORNIA

Session Chair: “Results in the Restricted Three-Body Problem” School and Conference on Computational Methods in Dynamics. Institute for Theoretical Physics, Trieste, Italy, 4-8 July 2011.

Committee member, *American Astronomical Association’s Division of Dynamical Astronomy.*

Reviewed papers for the following journals: *Physica D: Nonlinear Phenomena Applied Mathematics and Computation*, *Astronomical Journal*, *Monthly Notices of the Royal Astronomical Society*, *SIAM Journal on Scientific Computing*

SELECTED PUBLICATIONS AND PRESENTATIONS

Darren R. Davis and **Wayne Hayes**. “Automated Quantitative Description of Spiral Galaxy Arm-Segment Structure”. *Computer Vision and Pattern Recognition (CVPR) 2012*. Providence, Rhode Island, June 16-21, 2012.

Wayne Hayes, Anton Malykh, and Christopher Danforth. “The interplay of chaos between the Terrestrial and Giant Planets” *Monthly Notices of the Royal Astronomical Society* 2010. doi:10.1111/j.1365-2966.2010.17027

Yong-Kang Zhu and **Wayne Hayes**. “Online exact summation of floating-point streams”. *ACM Transactions on Mathematical Software* Vol. 37:3 (2010). 12 pages

Oleksii Kuchaiev, Tijana Milenkovic, Vesna Memisevic, **Wayne Hayes**, Natasa Przulj. “Topological network alignment uncovers biological function and phylogeny”. *Journal of the Royal Society Interface* 2010 7, 1341-1354 dio:10.1098/rsif.2010.0063.

Wayne Hayes. “Surfing on the edge: chaos versus near-integrability in the system of Jovian planets”. *Monthly Notices of the Royal Astronomical Society* **386**, pp. 295–306 (2008).

Presentations

Wayne Hayes and Chris Danforth. “Outer Solar System Surfing the Edge of Chaos, Part II”. Seminar at Math Department, *Imperial College London*, United Kingdom, June 30, 2009.

Wayne Hayes and Darren Davis. “Shape Inference in Galaxy Images”. Department Seminar, Astronomy Department, *Oxford University*, 9 Sept. 2010.

Wayne Hayes, Anton Malykh, Chris Danforth. “Solar System Surfing the Edge of Chaos”. Seminar, *Pulkova Observatory, St. Petersburg, Russia*, 20 Aug. 2010.

Wayne Hayes, Anton Malykh, Chris Danforth. “Solar System Surfing the Edge of Chaos”. Seminar, *Keldysh Institute of Mathematics, Moscow, Russia*, 16 Aug 2010.

Wayne Hayes and Darren Davis. “Shape Inference in Galaxy Images”. Department Seminar, *Institute of Astronomy, Cambridge University*, 14 July 2010.

Wayne Hayes and Darren Davis. “Shape Inference in Galaxy Images”. Department Colloquium, *Computer Science, Cambridge University*, 26 May 2010.

Wayne Hayes, Anton Malykh, Chris Danforth. “Solar System Surfing the Edge of Chaos”. Department Seminar, *Department of Applied Mathematics and Theoretical Physics, Cambridge University*, 25 May 2010.

PROFESSIONAL DEVELOPMENT ACTIVITIES - none

NAME - Glenn E. Healey

EDUCATION

Ph.D., Computer Science, Stanford University, 1988
M.S., Mathematics, Stanford University, 1986
M.S., Computer Science, Stanford University, 1985
BSE, Computer Engineering, University of Michigan, 1984

ACADEMIC EXPERIENCE

UC Irvine, Professor, 1999-present
UC Irvine, Associate Professor, 1995-1999
UC Irvine, Assistant Professor, 1989-1995

NON-ACADEMIC EXPERIENCE

IBM Research, Scientist, 1988-1989
Schlumberger Palo Alto Research, Consultant, 1986

CERTIFICATIONS AND PROFESSIONAL REGISTRATIONS - none

CURRENT MEMBERSHIPS IN PROFESSIONAL ORGANIZATIONS

ACM
IEEE
IEEE Computer Society
SPIE

HONORS AND AWARDS

SPIE Fellow, 2007
IEEE Fellow, 2004
IEEE Outstanding Service Award, 1997
IEEE Presentation Award, 1997
ECE Professor of the Year, 1996
IEEE Senior Member, 1996
School of Engineering Teaching Award, 1993
PreGraduate Mentorship Award, 1991-1992
Eta Kappa Nu, 1991
Hertz Fellowship, 1987
NSF Fellowship, 1984
Schlumberger Achievement Award, 1984
W.H. Seeley Award, 1984
Angell Scholar, 1980-1984
W. J. Branstorm Prize, 1981

SERVICE ACTIVITIES within UNIVERSITY OF CALIFORNIA - none

SERVICE ACTIVITIES outside UNIVERSITY OF CALIFORNIA

Associate Editor, IEEE Transactions on Pattern Analysis and Machine Intelligence, 2003-2006

Associate Editor, IEEE Transactions on Image Processing, 1999-2004
Associate Editor, Journal of the Optical Society of America A, 1997-2000

SELECTED PUBLICATIONS AND PRESENTATIONS from the past five years

Articles, Journal

Hyperspectral texture synthesis using histogram and power spectral density matching, *IEEE Transactions on Geoscience and Remote Sensing*, 48(5),2261-2270, 2010.

Hyperspectral region classification using a three-dimensional Gabor Filterbank, *IEEE Transactions on Geoscience and Remote Sensing*, 48(9),3457-3464, 2010.

Comparison of spectral-only and spectral/spatial face recognition for personal identity verification, Z. Pan, G. Healey, B. Tromberg, *EURASIP Journal on Advances in Signal Processing*, January 2009.

Hyperspectral face recognition under unknown illumination. Pan, Z., Healey, G. E., Tromberg, B. *Optical Engineering*, 46(7). (2007).

Reflectance recovery for airborne sensor images of 3D scenes. Chandra, K., Healey, G. E. *Journal of the Optical Society of America A*, 24(4), 957-966. (2007).

Conference/Workshop/Symposium Proceedings

Modeling subpixel orientation effects for hyperspectral image analysis. Chandra, K., Healey, G. In *SPIE Proceedings. Algorithms and Technologies for Multispectral, Hyperspectral, and Ultraspectral Imagery XIII*, Vol. 6565. (2007).

Multiband texture synthesis using histogram and power spectral density matching. Sarkar, S., Healey, G. In *SPIE Proceedings. Algorithms and Technologies for Multispectral, Hyperspectral, and Ultraspectral Imagery XIII*, Vol. 6565. (2007).

Spectral/spatial filter selection for illumination-invariant hyperspectral texture discrimination. Nejati, N., Healey, G. In *SPIE Proceedings. Algorithms and Technologies for Multispectral, Hyperspectral, and Ultraspectral Imagery XIII*, Vol. 6565. (2007).

PROFESSIONAL DEVELOPMENT ACTIVITIES - none

NAME - Payam Heydari

EDUCATION

Ph.D., EE, University of Southern California, 2001
M.S., EE, Sharif University of Technology, Tehran, Iran, 1995
B.S., EE, Sharif University of Technology, Tehran, Iran, 1992

ACADEMIC EXPERIENCE

UC Irvine, Professor, 2010-present
UC Irvine, Associate Professor, 2006-2009
UC Irvine, Assistant Professor, 2001-2006

NON-ACADEMIC EXPERIENCE - none

CERTIFICATIONS AND PROFESSIONAL REGISTRATIONS - none

CURRENT MEMBERSHIPS IN PROFESSIONAL ORGANIZATIONS

Association for Computing Machinery (ACM)
Circuits and Systems Society, Member
Institute of Electrical and Electronics Engineers (IEEE), Senior Member
Solid-State Circuits Society, Member

HONORS AND AWARDS

Best Concept Paper Award, Paul Merage School of Business at UC-Irvine, 2009
School of Engineering Fariborz Maseeh Best Faculty Research Award, 2009
Winner of Business Plan Competition, Paul Merage School of Business at UC-Irvine, 2009
Low-Power Design Contest Award, IEEE Int'l Symp. on Low-Power Electronics and Design, 2008
Best Paper Award Nomination, IEEE RFIC Symposium, June 2008
IEEE Circuits and Systems Society Guillemin-Cauer Award, 2007
Inducted to the 2007 UC-Irvine's Living Our Values Honor Roll, 2007
Best Paper Award Nomination, IEEE Custom Integrated Circuits Conference, September 2007
Senior Member, IEEE, June 2007
Special Recognition for Outstanding Service, Leadership, and Commitment to IEEE-USA, 2006
Best Paper Award Nomination, IEEE Int'l Symp. on Low-Power Electronics and Design, October 2006
IEEE Circuits and Systems Society Darlington Award, 2005
National Science Foundation Early Career Award, 2005
Teaching Excellence Award, University of California, Irvine, 2005

SERVICE ACTIVITIES within UNIVERSITY OF CALIFORNIA

Member, Department Executive Committee, EECS Department, September 2007-present
Associate Chair, Graduate Affairs, EECS Department, September 2007-present
Associate Chair for Graduate Affairs, July 2007-present
Research and Travel Committee Representative, School of Engineering, UCI, 2002-present
Member of Campus-Wide Conflict of Interest Oversight Committee (COIOC), 2008-present

Member of the preliminary exam in Circuits and Devices subcommittee, 2005-present
Member, Center for Embedded Computer Systems (CECS), 2004-present
IEEE Student Branch Counselor, 2003-present
Member, Integrated Nanosystem Research Facility (INRF), 2002-present
Member, Center for Pervasive Communications and Computing (CPCC), 2001-present

SERVICE ACTIVITIES outside UNIVERSITY OF CALIFORNIA

Member of Technical Program Committee, IEEE Custom Integrated Circuits Conference, 2006-present
Associate Editor, IEEE TRANS. ON CIRCUITS AND SYSTEMS - I, 2006-present
Reviewer, IEEE Transactions on Microwave Theory and Techniques (TMTT), 2006-present
Reviewer, IEEE Microwave and Wireless Components Letters (MWCL), 2005-present
Member of Technical Program Committee, IEEE Int'l Symposium on Low-Power Electronics and Design, 2004-present
Member of Technical Program Committee, IEEE Int'l Symposium on Quality Electronic Design, 2003-present

SELECTED PUBLICATIONS AND PRESENTATIONS from the past five years

Articles, Journal

A Single-Chip Dual-Band 22-29GHz/77-81GHz BiCMOS Transceiver for Automotive Radars. Jain, V., Tzeng, F., Zhou, L., Heydari, P. *IEEE J. Solid-State Circuits*. (2009).

A BiCMOS Dual-Band Millimeter-Wave Frequency Synthesizer for Automotive Radars. Jain, V., Javid, B., Heydari, P. *IEEE J. Solid-State Circuits*. (2009).

A CMOS 22-29GHz Receiver Front-End for UWB Automotive Pulse-Radars. Jain, V., Sundararaman, S., Heydari, P. *IEEE Trans. on Microwave Theory and Techniques*. (2009).

Books, Authored

Silicon-Based RF Front-Ends for UWB Radios. Safarian, A., Heydari, P. Springer Verlag Publishing. (2007).

Conference/Workshop/Symposium Proceedings

A 2Gbps RF-Correlation-Based Impulse-Radio UWB Transceiver Front-End in 130nm CMOS. Zhou, L., Chen, Z., Wang, C.-C., Tzeng, F., Jain, V., Heydari, P. *IEEE RFIC Symposium*. (2009).

Design and Analysis of a Current-Reuse Transmitter for Ultra-Low Power Applications. Zheng, L., Yao, H.-C., Tzeng, F., Heydari, P. *IEEE Int'l Symp. on Circuits and Systems (ISCAS)*. (2009).

A Single-Chip Dual-Band 22-29GHz/77-81GHz BiCMOS Transceiver for Automotive Radars. Jain, V., Tzeng, F., Zhou, L., Heydari, P. *IEEE Int'l Solid-State Circuits Conference (ISSCC)*. (2009).

PROFESSIONAL DEVELOPMENT ACTIVITIES - none

NAME – Daniel Hirschberg

EDUCATION

Ph.D, Computer Science, Princeton University, 1975
M.A., Computer Science, Princeton University, 1973
M.S.E., Computer Science, Princeton University, 1973
B.E., Electrical Engineering, City College of New York, 1971

ACADEMIC EXPERIENCE

UC Irvine, Professor, 1987-present
UC Irvine, Associate Professor, 1981-1987
Rice University, Assistant Professor, 1975-1981

NON-ACADEMIC EXPERIENCE

Several law firms, consultant, provide expert testimony in judicial proceedings, 1998-2012
Manufacturing & Consulting Services, consultant, design CAD/CAM data structures, 1984-1989
A-Chip Company, consultant, design of data compression techniques, 1989
Pick Systems, consultant, design of operating system data structures, 1984-1989
Computer Cognition, consultant, design data structures for AI applications, 1986
Univ of Texas Health Science Center, consultant, database development for genetics, 1978-1981
Argonne National Laboratories, visitor, development for system simulation, 1976

CERTIFICATIONS AND PROFESSIONAL REGISTRATIONS - none

CURRENT MEMBERSHIPS IN PROFESSIONAL ORGANIZATIONS - none

HONORS AND AWARDS - none

SERVICE ACTIVITIES within UNIVERSITY OF CALIFORNIA

Chair, University Committee on Rules and Jurisdiction, 1998-2002, 2007-2009
Parliamentarian, UC Irvine Senate, 2000-present
Chair, UC Irvine Committee on Rules and Jurisdiction, 1992-94, 1997-98, 2003-2006, 2012-2013
Member, UC Irvine Academic Senate Executive Committee, 1992-1994, 1997-1998
Member, UC Irvine Committee on Committees, 1995-1999
Member, UC Irvine Committee on Courses, 1992-1995
ICS Associate Chair for Academic Personnel, 2000-2001
ICS Associate Chair of Undergraduate Studies, 1992-1993, 1996-1998
ICS Associate Chair of Graduate Studies, 1984-1990

SERVICE ACTIVITIES outside UNIVERSITY OF CALIFORNIA

Associate Editor, Discrete Mathematics, Algorithms and Applications, 2009-present
Associate Editor, ACM Trans. on Mathematical Software, 1988-1990
Program Committee Co-Chair, Combinatorial Pattern Matching, 1996
Program Committee member, Combinatorial Pattern Matching, 1992,1993,1994,1996,1997,2009
Program Committee member, Combinatorial Optimization and Applications, 2010
Program Committee member, IEEE Data Compression Conference, 1991,1992,1993,1994

Program Committee member, String Processing and Information Retrieval, 1998

SELECTED PUBLICATIONS AND PRESENTATIONS from the past five years:

- “Cache-oblivious dictionaries and multimaps with negligible failure probability,” M.T. Goodrich, D.S. Hirschberg, M. Mitzenmacher, and J. Thaler, Mediterranean Conference on Algorithms, December 2012.
- “Hashing algorithms and data structures for rapid searches of fingerprint vectors,” R. Nasr, D.S. Hirschberg, and P. Baldi, *J. of Chemical Information and Modeling* 50:8, pp.1358-1368, (2010).
- “An intersection inequality sharper than the Tanimoto triangle inequality for efficiently searching large databases,” P. Baldi and D.S. Hirschberg, *Journal of Chemical Information and Modeling* 49:8, pp.1866-1870, (2009).
- “Speeding up chemical database searches using a proximity filter based on the logical exclusive-or,” P. Baldi, D.S. Hirschberg, and R. Nasr, *Journal of Chemical Information and Modeling* 48:7, pp.1367-1378, (2008).
- “Improved adaptive group testing algorithms with applications to multiple access channels and dead sensor diagnosis,” M.T. Goodrich and D.S. Hirschberg,” *Journal of Combinatorial Optimization* 15:1, pp.95-121, (2008).
- “Lossless compression of chemical fingerprints using integer entropy codes improves storage and retrieval,” P. Baldi, R. Benz, D.S. Hirschberg, and S. Swamidass, *Journal of Chemical Information and Modeling* 47:6, pp.2098-2109, (2007).
- “The minimum size required of a solitaire army,” G.I. Bell, D.S. Hirschberg, and P. Guerrero-Garcia,” *Integers: Electronic Journal of Combinatorial Number Theory* 7 (2007).
- “Improved combinatorial group testing algorithms for real-world problem sizes,” D. Eppstein, M.T. Goodrich, and D.S. Hirschberg, *SIAM J. on Computing* 36:5, pp.1360-1375, (2007).
- “Effective compression of monotone and quasi-monotone sequences of integers,” D.S. Hirschberg and P. Baldi, 18th IEEE Data Compression Conference, March 2008.

PROFESSIONAL DEVELOPMENT ACTIVITIES - none

Name - Alexander T. Ihler

EDUCATION

Ph.D, Electrical Engineering & Computer Sci., Massachusetts Institute of Technology, 2005
M.S., Electrical Engineering & Computer Sci., Massachusetts Institute of Technology, 2000
B.S., Electrical Engineering & Mathematics, California Institute of Technology, 1998

ACADEMIC EXPERIENCE

UC Irvine, Assistant Professor, 2007-present, Full-time
Toyota Technological Institute at Chicago, Research Assistant Professor, 2007, Full-time
UC Irvine, Postdoctoral Fellow, 2005-2006, Full-time

NON-ACADEMIC EXPERIENCE

Veracyte, consultant, statistics and algorithm design, 2009

CERTIFICATIONS AND PROFESSIONAL REGISTRATIONS - none

CURRENT MEMBERSHIPS IN PROFESSIONAL ORGANIZATIONS

Institute of Electrical and Electronics Engineers (IEEE)
Sigma Xi

HONORS AND AWARDS

Pascal/UAI 2012 Inference Challenge, 1st place team (MPE tasks), 2nd place (PR/MAR tasks)
Notable Paper Award, AI & Statistics Conference, April 2011.
Best Student Paper Award, Neural Information Processing Systems Conference, Dec. 2004.
Best Student Paper Award, Information Processing in Sensor Networks, April 2004.

SERVICE ACTIVITIES Within the University of California

Member, UC Irvine Council on Educational Policy, 2010-present
Chair, Steering Committee, Computer Science & Engineering (CS/E) Program, U.C. Irvine

SERVICE ACTIVITIES Outside the University of California

Editorial Board, Machine Learning, 2011-2014
Publicity Chair, AI & Statistics Conference 2009
Conference Program Committees and Reviewing: AISTats, ICML, ECCV, CVPR, NIPS
Senior Program Committee or Area Chair: UAI 2012, ICML 2013

Journal Reviewing: IEEE Trans. Signal Process., Trans. Info. Theory, Trans. Image Process., J.
Mach. Learn. Res., J. AI Res., Machine Learning

SELECTED PUBLICATIONS AND PRESENTATIONS from the past five years:

- Qiang Liu and Alexander Ihler. Belief propagation for structured decision making. In Proceedings, Uncertainty in Artificial Intelligence (UAI), August 2012.
- Alexander Ihler, Natalia Flerova, Rina Dechter, and Lars Otten. Join-graph based cost-shifting schemes. In Proceedings, Uncertainty in Artificial Intelligence (UAI), August 2012.
- Qiang Liu and Alexander Ihler. Distributed parameter estimation via pseudo-likelihood. In Proceedings, International Conference on Machine Learning (ICML), June 2012.
- Ozgur Sumer, Umut Acar, Alexander Ihler, and Ramgopal Mettu. Adaptive exact inference in graphical models. *Journal of Machine Learning Research* **12**:3147-3186, Nov. 2011.
- Ozgur Sumer, Umut Acar, Alexander Ihler, and Ramgopal Mettu. Fast parallel and adaptive updates for dual-decomposition solvers. In Proceedings, Conference on Artificial Intelligence (AAAI), August 2011.
- Qiang Liu and Alexander Ihler. Variational algorithms for marginal MAP. In Proceedings, Uncertainty in Artificial Intelligence (UAI), August 2011.
- Erik Sudderth, Alexander Ihler, Michael Isard, William Freeman, and Alan Willsky. Nonparametric belief propagation. *Communications of the ACM* **53**(10), Oct. 2010.
- Alexander Ihler, Andrew Frank and Padhraic Smyth. Particle-based variational inference for continuous systems. In Proceedings, Neural Information Processing Systems (NIPS), Dec. 2009.
- Alexander Ihler. Accuracy bounds for belief propagation. In Proceedings, Uncertainty in Artificial Intelligence (UAI), July 2007.
- Alexander Ihler, Jon Hutchins, and Padhraic Smyth. Learning to detect events with Markov-modulated Poisson processes. *ACM Transactions on Knowledge Discovery in Data*, **1**(3):13, December 2007.

PROFESSIONAL DEVELOPMENT ACTIVITIES - none

NAME - Sandra S. Irani

EDUCATION

Postdoctoral Fellow, Department of Computer Science and Eng., University of California, San Diego

Postdoctoral Fellow, DIMACS, Princeton University

PhD, Competitive On-line Algorithms, Computer Science, University of California, Berkeley, 1991

BSE, Electrical Engineering and Computer Science, Princeton University, 1986

ACADEMIC EXPERIENCE

UC Irvine, Professor, 2003-Present

UC Irvine, Associate Professor, 1997-2003

UC Irvine, Assistant Professor, 1991-1997

HONORS AND AWARDS

Outstanding Professor Award, as voted by the graduating class of 1997, 1997

Golden Floppy Award for outstanding teaching as voted by the ICS student chapter of the Association for Computing Machinery, June 1997

NSF Research Initiation Award, June 1993-June 1996

NSF Visiting Professorship for Women to visit Columbia University, July 1994-December 1994

University of California President's Postdoctoral Fellowship, July 1991-June 1992

IBM Graduate Fellowship, September 1989-May 1991

SERVICE ACTIVITIES within UNIVERSITY OF CALIFORNIA

Vice Chair, Computer Science Department, July 1, 2012-Present

Department Chairperson, Department of Computer Science, University of California, Irvine, July 1, 2010-June 30, 2012

Department Chairperson, Department of Computer Science, University of California, Irvine, July 2005-June 2008

Associate Dean, October 2002-December 2002

WICS Faculty Advisor, July 1, 2010-June 30, 2012

Member, ICS Executive Committee, July 1, 2009-June 30, 2010

UCI Task Force for Student Support, 2009-2010

Dean Search Committee., Henry Samueli School of Engineering, 2008

Campuswide Honors Program Review Committee, October 2006-June 2007

Advisory Committee, UC Irvine Chancellor Search, 2005

UC Irvine Task Force on Undergraduate Education, October 2003-June 2004

Chair, Work Group on Classroom Environment and Facilities, October 2003-June 2004

Equity Advisor, ADVANCE, September 2002-January 2004

Member, Council on Educational Policy, September 1999-August 2002

Chancellor's workgroup to write new campus policy on Sexual Harassment, April 1997-June 1997

Campus Executive Committee, October 1996-June 1997

Chair, Committee on Student Affairs, October 1996-June 1997

SERVICE ACTIVITIES outside UNIVERSITY OF CALIFORNIA

Associate Editor, Journal of Computer Systems Science, March 2011 - Present

Editorial Review Board Member, Theory of Computing, February 2005 - Present

Program committee member, 14th Workshop on Quantum Information Processing (QIP), 2011

Program committee member, 43rd ACM Symposium on the Theory of Computing (STOC), 2011

Program committee member, 20th Annual Symposium on Discrete Algorithms (SODA), 2009

Program committee member, 17th Annual Symposium on Discrete Algorithms (SODA), 2006

Program committee member, 36th Annual Symposium on the Theory of Computing (STOC), 2004

Editor, Special issue on Online Algorithms: In Memoriam, Steve Seiden, 324(2-3), 2004

Program committee member, 11th Annual Symposium on Discrete Algorithms (SODA), 2000

Program committee member, 37th Annual Symposium on the Foundations of Computer Science (FOCS), 1996

Program committee member, 25th ACM Symp. on Theory of Computing (STOC), 1993

SELECTED PUBLICATIONS AND PRESENTATIONS from the past five years

Articles, Journal

D. Aharonov, I. Arad, S. Irani, "Efficient algorithm for approximating one-dimensional ground states", *Physics Review A*, vol. 82, September 2010.

S. Irani, "Ground State Entanglement in One Dimensional Translationally Invariant Quantum Systems", *Journal of Mathematical Physics*, vol. 51, September 2009.

D. Aharonov, D. Gottesman, S. Irani, J. Kempe, "The Power of Quantum Systems on a Line", *Communications on Mathematical Physics*, vol. 287, pp. 41-65, September 2009.

J. Augustine, S. Banerjee, S. Irani, "Strip packing with precedence constraints and strip packing with release times", *Theoretical Computer Science*, vol. 410, pp. 3792-3803, September 2009.

J. Augustine, S. Irani, C. Swamy, "Optimal Power-down Strategies", *SIAM Journal on Computing*, vol. 37, pp. 1499-1516, September 2008.

S. Irani, V. Leung, "Probabilistic Analysis for Scheduling with Conflicts", *Theoretical Computer Science*, vol. 396, pp. 158-179, September 2008.

A. Majumder, S. Irani, "Perception Based Contrast Enhancement of Images", *ACM Transactions on Applied Perception*, vol. 4, September 2007.

S. Irani, S. Shukla, R. Gupta, "Algorithms for Power Savings", *Journal of Algorithms, special issue for selected papers from SODA 2003*, vol. 3, September 2007.

D. Gottesman, S. Irani, *The Quantum and Classical Complexity of Translationally Invariant Tiling and Hamiltonian Problems*, 50th IEEE Symposium on the Foundations of Computing. 2009.

PROFESSIONAL DEVELOPMENT ACTIVITIES - none

NAME - Syed A. Jafar

EDUCATION

Ph.D., Electrical Engineering, Stanford University, 2003

M.S., Electrical Engineering, California Institute of Technology (CALTECH), 1999

B.TECH, Electrical Engineering, Indian Institute of Technology, 1997

ACADEMIC EXPERIENCE

UC Irvine, Associate Professor, 2009-present

UC Irvine, Assistant Professor, 2004-2009

NON-ACADEMIC EXPERIENCE

Qualcomm Incorporated, Senior Engineer, Qualcomm Technology and Ventures Group, August 2003-January 2004

Lucent Bell Labs, Summer Intern, Wireless Research Group, 2001

Hughes Software Systems, Software Engineer, Satellite Networks Division, 1997-1998

CERTIFICATIONS AND PROFESSIONAL REGISTRATIONS - none

CURRENT MEMBERSHIPS IN PROFESSIONAL ORGANIZATIONS - none

HONORS AND AWARDS

Fariborz Maseeh Outstanding Research Award 2010.

[Information Theory Society Paper Award](#) 2009.

[ONR Young Investigator Award](#) 2008.

[NSF CAREER](#) award 2006.

IEEE GLOBECOM best paper award 2012

CPCC Best Dissertation Award received by PhD student Tiangao Gou, 2012.

CPCC Best Dissertation Award received by PhD student Viveck Cadambe, 2011.

Engineering School Excellence in Teaching Award 2012

UCI EECS Professor of the Year 2012.

UCI EECS Professor of the Year 2011.

UCI EECS Professor of the Year 2009.

UCI Engineering School [Faculty of the Year](#) 2006.

University of Canterbury [Erskine Fellow](#) 2010.

Inaugural lecturer for [First Canadian School of Information Theory](#) 2011.

Plenary speaker for IEEE Workshop on Signal Processing Advances in Wireless Communications (SPAWC) 2012, Izmir, Turkey.

Plenary speaker for IEEE [Communication Theory Workshop 2010](#), Cancun, Mexico.

Plenary speaker for International Conference on Signal Processing and Communications [SPCOM 2010](#), IISC, Bangalore, India.

IEEE Senior Member 2009.

Paper [C73](#) among the finalists for the best student paper award at IEEE ISIT 2010.

Paper [C63](#) among the finalists for the best student paper award at IEEE ISIT 2009.

Paper [C48](#) among the two papers nominated for the best paper award for the Communication Theory Symposium at IEEE ICC 2008.

Paper [J20](#) won UCI EECS best student paper award 2009.
Paper [J11](#) won UCI EECS best student paper award 2007.
7 times winner of institute merit prize, IIT Delhi 1993-1997.
Top undergraduate thesis in communications, IIT Delhi 1997.
University Gold Medal at AMU, India 1993
University Merit Scholarship at AMU, India 1992.

SERVICE ACTIVITIES within UNIVERSITY OF CALIFORNIA

Associate Chair for Graduate Studies 2012-present
School of Engineering Executive Committee 2010-11
Teaching Assistant Assignment Committee 2009-12
Committee Member, UCI EECS Graduate Admissions, 2007-11
UCI EECS committee member (and committee chair for Spring 2007) for systems area Ph.D. qualifying exam, 2007
Committee Member, UCI EECS preliminary exam, 2004-2006
Committee Member, UCI EECS Department website, 2004-2005

SERVICE ACTIVITIES outside UNIVERSITY OF CALIFORNIA

Associate Editor, IEEE Transactions on Information Theory, 2009-12.
Associate Editor, IEEE Transactions on Communications, 2004-2009.
Associate Editor, IEEE Communications Letters, 2008-09.
Guest Editor, Journal of Communication Networks, Special issue on "Cognitive Radio" 2008.
Co-Chair for Communication Theory Symposium, IEEE GLOBECOM 2009.
Co-Chair for MIMO and Space Time Coding Track IEEE VTC 2011.
Finance Chair for IEEE Information Theory Workshop (ITW) 2010.
Technical Program Committee Member for IEEE conferences ICC, ISIT, GLOBECOM
NSF grant review panel member 2006.

SELECTED PUBLICATIONS AND PRESENTATIONS from the past five years

Viveck R. Cadambe, Syed A. Jafar, Interference Alignment and the Degrees of Freedom for the K User Interference Channel, IEEE Transactions on Information Theory, Aug 2008, Vol. 54, Issue 8, Pages: 3425-3441.

Syed A. Jafar, Sriram Vishwanath, Generalized Degrees of Freedom of the Symmetric Gaussian K User Interference Channel , IEEE Transactions on Information Theory, July 2010, Vol. 56, Issue: 7, Pages: 3297-3303

A. J. Goldsmith, Syed A. Jafar, N. Jindal, S. Vishwanath, Capacity limits of MIMO channels, IEEE Journal on Selected Areas in Communications , Vol. 21, No. 5, June 2003, Pages: 684-702. (Invited Paper)

Syed A. Jafar, Shlomo Shamai, Degrees of Freedom Region for the MIMO X Channel, IEEE Transactions on Information Theory, Vol. 54, No. 1, Jan. 2008, Pages: 151-170.

PROFESSIONAL DEVELOPMENT ACTIVITIES - none

NAME - Hamid Jafarkhani

EDUCATION

Ph.D., Electrical Engineering, University of Maryland, 1997

M.S., Electrical Engineering, University of Maryland, 1994

B.S., Electrical Engineering, Tehran University, 1989

ACADEMIC EXPERIENCE

UC Irvine, Chancellor's Professor and Conexant-Broadcom Endowed Chair, 2010-present

UC Irvine, Director, Center for Pervasive Communications & Computing, 2010-present

UC Irvine, Chancellor's Professor, 2009-present

UC Irvine, Professor, 2006-present

UC Irvine, Associate Professor, 2003-2006

UC Irvine, Assistant Professor, 2001-2003

Institute for Systems Research, Research Assistant, 1992-1997

NON-ACADEMIC EXPERIENCE

Broadcom Corporation, Senior Staff Scientist, 2000-2001

AT&T Labs - Research, Principal Technical Staff Member, 2000

AT&T Labs - Research, Senior Technical Staff Member, 1997-2000

Lucent Technologies (Bell Labs Innovations), Internship, 1996

CERTIFICATIONS AND PROFESSIONAL REGISTRATIONS - none

CURRENT MEMBERSHIPS IN PROFESSIONAL ORGANIZATIONS - none

HONORS AND AWARDS

Fellow of AAAS, 2010

Conexant-Broadcom Endowed Chair, 2010

Best paper award, Journal of Communications and Networks, 2010

Awarded the title of Chancellor's Professor, 2009

Invited to participate in the National Academy of Engineering's 2008 U.S. Frontiers of Engineering, 2008

School of Engineering Fariborz Maseeh Best Faculty Research Award, 2007

UCI Distinguished Mid-Career Faculty Award for Research, 2006-2007

Top 10 most-cited researchers in the field of "computer science", Essential Science Indicators from Thomson Scientific, 1997-2007

Best Paper Award, IEEE Transactions on Wireless Communications: The IEEE Marconi Prize Paper Award in Wireless Communications, 2006

IEEE Fellow, 2006

Sole author of a paper selected by Essential Science Indicators (ESI) as an Emerging Research Front in the field of Engineering, 2006

SERVICE ACTIVITIES within UNIVERSITY OF CALIFORNIA

Communication and Signal Processing Ph.D. Prelim Exam Committee, 2001-present

Associate Chair for Graduate Affairs, Department of Electrical Engineering and Computer Science, 2005-2007
Graduate Advisor, Department of Electrical Engineering and Computer Science, 2003-2007
School of Engineering Graduate Studies Committee, 2003-present
Deputy Director, Center for Pervasive Communications & Computing, September 2001-present
Director, Networked Systems Program, 2009-2011

SERVICE ACTIVITIES outside UNIVERSITY OF CALIFORNIA

Editor, IEEE Transactions on Wireless Communications, 2007-present
Vice Chair of Technical Program Committee (PHY Track), IEEE Wireless Communications and Networking Conference (WCNC), 2010
Chair, IEEE Data Compression Conference (DCC), 2009
Chair, IEEE Wireless Communications and Networking Conference (WCNC), 2009
Keynote Speaker, World Congress on Computer Science and Information Engineering (CSIE), 2009

SELECTED PUBLICATIONS AND PRESENTATIONS from the past five years

Articles, Journal

A Systematic Distributed Quantizer Design Method with an Application to MIMO Broadcast Channels. Koyuncu, E., Jafarkhani, H. *IEEE Data Compression Conference*, (2010)

Network Beamforming Using Relays with Perfect Channel Information. Jing, Y., Jafarkhani, H. *IEEE Transactions on Information Theory*, 55, 2499-2517. (2009).

Distributed Beamforming in Wireless Relay Networks with Quantized Feedback. Koyuncu, E., Jing, Y., Jafarkhani, H. *IEEE Journal on Selected Areas in Communications*, 26, 1429-1439. (2008).

Distributed Differential Space-Time Coding for Wireless Relay Networks. Jing, Y., Jafarkhani, H. *IEEE Transactions on Communications*, 56, 1092-1100. (2008).

Books, Authored

Space-Time Coding: Theory and Practice. Jafarkhani, H. Cambridge University Press. (2005).

Conference/Workshop/Symposium Proceedings

Interference Cancellation in Distributed Space-Time Coded Wireless Relay Networks. Jing, Y., Jafarkhani, H. *IEEE International Conference on Communications (ICC-09)*. (2009).

Wireless Video Transmission: A Single Layer Distortion Optimal Approach. Nejati, N., Yousefi'zadeh, H., Jafarkhani, H. *IEEE Data Compression Conference (DCC-09)*. (2009).

PROFESSIONAL DEVELOPMENT ACTIVITIES - none

Name: Ramesh C. Jain

EDUCATION

B.E. Nagpur University, Nagpur 1969
Ph.D. Indian Institute of Technology, Kharagpur, 1975

ACADEMIC EXPERIENCE

University of California, Irvine, Professor	2005-	
Georgia Institute of Technology	2002-2005	Atlanta, GA
University of California, San Diego, Professor	1993-1999	San Diego, CA
University of Michigan, Professor	1982-1993	Ann Arbor, MI
Wayne State University, Asso Professor	1979-1982	Detroit, MI
University of Texas, Austin, Visiting Asst Prof	1978	Austin, TX
Universitaet Hamburg, Researcher	1976-1978	Hamburg, Germany
Indian Institute of Technology, Lecturer	1972-1976	Kharagpur, India

NON-ACADEMIC EXPERIENCE

mChron, Inc. Co-Founder and Technical Advisor, 2010-
PRAJA inc 1996 – 2002 San Diego, CA
Co-Founder 1996; President & CEO 1996 - June 2001; CTO July 2001- 2002
Virage (NASDAQ:VRGE) 1994-2000 San Mateo, CA
Founder, CEO, and Chairman 1994-1996; Chairman 1996-1999;
Director 1999-2000
ImageWare, Inc. 1991-1997 Ann Arbor, MI
Founder & Chairman 1991-1995; Director 1995-1997

CURRENT MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS

ACM, IEEE, SPIE, TiE

HONORS AND AWARDS

Fellow of: ACM, IEEE, AAI, IAPR, SPIE
Outstanding Achievement Awards SIGMM, 2011.
Several other awards.

SERVICE ACTIVITIES within UNIVERSITY OF CALIFORNIA-none

SERVICE ACTIVITIES outside UNIVERSITY OF CALIFORNIA

- Organized several conferences and workshops;
- Founding EIC of IEEE Multimedia and Machine Vision and Applications;
- On Editorial board of several journals.
- Advisor to 5 international research centers in 5 different countries.
- Industry: Advises many start-up and large companies
- Invited and gave several **keynote** talks at (flagship) Multimedia, Databases, Web Science and Pervasive computing conferences.

SELECTED PUBLICATIONS AND PRESENTATIONS from the past five years:

1. Ramesh Jain, "EventWeb: Events and Experiences in Human Centered Computing", (Cover Feature) in IEEE Computer, February 2008.
2. Ramesh Jain, "Experiential Computing", Communications of ACM, July 2003.
3. Vivek Singh, Mingyan Gao, and Ramesh Jain, "Social Pixels: Genesis and evaluation", Proc. ACM Multimedia, 2010.
4. A. Scherp and R. Jain, "An Eco System for Semantics," in IEEE Multimedia, June 2009.
5. G. Utz Westermann and Ramesh Jain, "Towards a Common Event Model for Multimedia Applications", in IEEE Multimedia, January 2007.
6. P. K. Atrey, M. S. Kankanhalli and R. Jain. Information assimilation framework for event detection in multimedia surveillance systems. Springer/ACM Multimedia Systems Journal, 12(3):239-253, December 2006.
7. V. Singh, H. Pirsiavash, I. Rishabh, and R. Jain, "Towards Environment-to-Environment Multimedia Communication Systems", Multimedia Systems and Tools Journal, 2009.
8. M.S. Kankanhalli, J. Wang and R. Jain, "Experiential Sampling in Multimedia Systems," IEEE Transactions on Multimedia, Vol. 8, No. 5, October 2006.
9. Mingyan Gao, Xiaoyan Yang, Ramesh Jain and Beng Chin Ooi. Spatio-Temporal Event Stream Processing in Multimedia Communication Systems, In SSDBM 2010, Heidelberg Germany.
10. Vivek Singh, Mingyan Gao, and Ramesh Jain, ***Situation detection and control using spatiotemporal analysis of microblogs***, World Wide Web Conference (WWW), 2010.

PROFESSIONAL DEVELOPMENT ACTIVITIES - none

NAME: Stanislaw Jarecki

EDUCATION

Massachusetts Institute of Technology, Laboratory for Computer Science

Degree: Ph.D. in Computer Science June 2001

Degree: Master of Engineering in Computer Science February 1996

Degree: Bachelor of Science in Computer Science and Mathematics September 1995

ACADEMIC EXPERIENCE

University of California at Irvine, Bren School of Information and Computer Sciences

Associate Professor, UC Irvine, Department of Computer Science, 2009 – Present

Assistant Professor, UC Irvine, Department of Computer Science, 2003 – 2009

Postdoctoral Fellow, Stanford University, Department of Computer Science, 2002 – 2003

Research and Teaching Assistant, Massachusetts Institute of Technology, 1996 – 2000

NON-ACADEMIC EXPERIENCE

InterTrust Technologies Corporation, STAR Lab Research, 2000 –2002

Novell Inc., Network Security Group, Summer 1997

AT&T Research - Bell Labs, Department of Mathematics, Summer 1996

IBM T.J. Watson Research, Cryptography and Security Group, Summer 1994; 1995

CERTIFICATIONS AND PROFESSIONAL REGISTRATIONS

None.

CURRENT MEMBERSHIPS IN PROFESSIONAL ORGANIZATIONS

International Association of Cryptologic Research: Member, 1995-2011.

SERVICE ACTIVITIES within UNIVERSITY OF CALIFORNIA

Member of several ad-hoc committees, 2003-2011

SERVICE ACTIVITIES outside UNIVERSITY OF CALIFORNIA

Program and General Co-Chair: Public Key Cryptography, PKC 2009, Irvine, CA.

Program Committee Member:

Public Key Cryptography, PKC 2011

Cryptography Track of RSA Conference, CT-RSA 2011

ACM Communication and Computer Security Conference, CCS 2010

29th Annual Eurocrypt Conference, Eurocrypt 2010

Public Key Cryptography, PKC 2010

Cryptography Track of RSA Conference, CT-RSA 2010

Applied Cryptography and Network Security Conference, ACNS 2009

Cryptography Track of RSA Conference, CT-RSA 2009

Financial Cryptography Conference, FC 2009

International Conference on Information Security and Cryptography, ICISC 2008

Applied Cryptography and Network Security Conference, ACNS 2008

Financial Cryptography Conference, FC 2008
ACM CCS Conference, Digital Rights Management Workshop, CCS DRM 2007
International Security Conference, ISC 2007
Fifth Conference on Security and Cryptography for Networks, SCN 2006
25th Annual International Cryptology Conference, Crypto 2005
Applied Cryptography and Network Security Conference, ACNS 2005

Journal Referee: Refereed cryptography-related articles for Journal of Cryptology, Information and Computation, ACM TISSEC, IEEE Transactions on Information Theory, SIAM J. of Discrete Mathematics, Information Processing Letters, IEEE Transactions on Dependable and Secure Computing, IEEE International Symposium on Information Theory, Journal of Computer Science and Technology.

Funding Agency Referee: Refereed cryptography-related grant proposals for NSF CyberTrust, U.S. Army Research Office (ARL/ARO), U.S. Department of Energy, Israel Science Foundation, Portuguese Science and Technology Foundation

SELECTED PUBLICATIONS AND PRESENTATIONS (selected recent publications)

[JS10] Stanisław Jarecki and Nitesh Saxena. Key Agreement with Key Re-Use in the Short Authenticated Strings Model. 7th Conference on Security in Communication Networks – SCN 2010, pp. 253-270.

[JL10] Stanisław Jarecki and Xiaomin Liu. Fast Secure Computation of Set Intersection. 7th Conference on Security in Communication Networks – SCN 2010, pp. 418-435.

[BJ10] Ali Bagherzandi and Stanisław Jarecki. Identity-Based Aggregate and Multi-Signature Schemes Based on RSA. 13th International Conference on Practice and Theory in Public Key Cryptography -- PKC 2010, pp. 480-498.

[JL09a] Stanisław Jarecki and Xiaomin Liu. Private Mutual Authentication and Conditional Oblivious Transfer. Crypto 2009, pp. 90-107.

[JL09b] Stanisław Jarecki and Xiaomin Liu. Efficient Oblivious Pseudorandom Function with Applications to Adaptive OT and Secure Computation of Set Intersection. 6th Theory of Cryptography Conference – TTC 2009, pp. 577-594.

[BCJ08] Ali Bagherzandi, Jung Hee Cheon, Stanisław Jarecki. Multisignatures Secure under the Discrete Logarithm Assumption and a Generalized Forking Lemma. 15th ACM Conference on Computer and Communication Security -- CCS 2008, pp. 449-458.

[JL08] Stanisław Jarecki and Xiaomin Liu. Affiliation-Hiding Envelopes and Authentication with Efficient Support for Multiple Credentials. 35th International Colloquium on Automata, Languages and Programming – ICALP'08, pp. 715-726.

PROFESSIONAL DEVELOPMENT ACTIVITIES - none

NAME: Scott Jordan

EDUCATION:

Ph.D., Electrical Engineering & Computer Science, U.C. Berkeley, 1990
M.S., Electrical Engineering & Computer Science, U.C. Berkeley, 1987
B.S., Electrical Engineering & Computer Science, U.C. Berkeley, 1985
A.B., Applied Mathematics, U.C. Berkeley, 1985

ACADEMIC EXPERIENCE:

U.C. Irvine, Professor, 2008-present, full-time
U.C. Irvine, Associate Professor, 1999-2008, full-time
Northwestern University, Associate Professor, 1997-1999, full-time
Northwestern University, Assistant Professor, 1990-1997, full-time

NON-ACADEMIC EXPERIENCE:

Quantum, consulting, 2008
Packet Video, technical advisory board, 2001
Motorola, consulting, 1998-1999
3Com, consulting, 1997-1999
Hughes Aircraft, Member of Technical Staff, 1982-1990

CERTIFICATIONS AND PROFESSIONAL REGISTRATIONS: none

CURRENT MEMBERSHIPS IN PROFESSIONAL ORGANIZATIONS:

IEEE
ACM
Society of Women Engineers

HONORS AND AWARDS:

Excellence in Teaching Award, U.C. Irvine, 2001
Congressional Fellow, IEEE/AAAS, 2006

SELECTED SERVICE ACTIVITIES (during last 5 years):

Panel Review Member, NTIA Broadband Technology Opportunities Program, 2009
Member, Federal Communications Commission Open Internet Technical Advisory Committee, 2009-2010
Member, Technical Program Committee, ITC, 2011
Member, Technical Program Committee, ACM Workshop on Pricing and Incentives in Networks, 2011
Director, U.C. Irvine Networked Systems, 2007-2009
Member, U.C. Irvine Conflict of Interest Oversight Committee, 2009-2011
Member, U.C. Irvine Council on Budget and Planning, 2010-current

SELECTED PUBLICATIONS (during last 5 years):

- P. Liu, R. Berry, M. Honig, & S. Jordan, "Packet-Based Power Allocation for Forward Link Data Traffic", *IEEE Transactions on Wireless Communications*, vol. 6 no. 8, August 2007, pp. 2894-2903.
- S. Jordan, "A Layered Network Approach to Net Neutrality", *International Journal of Communication*, vol. 1, Special Issue on Net Neutrality, 2007.
- N. Chen & S. Jordan, "Violation Probability in Processor-Sharing Queues", *IEEE Transactions on Automatic Control*, vol. 53 no. 8, September 2008, pp. 1956-1961.
- N. Jin & S. Jordan, "On the Feasibility of Dynamic Congestion-Based Pricing in Differentiated Services Networks", *IEEE/ACM Transactions on Networking*, vol. 16 no. 5, October 2008, pp. 1001-1014.
- P. Zhang & S. Jordan, "Cross Layer Dynamic Resource Allocation with Targeted Throughput for WCDMA Data", *IEEE Transactions on Wireless Communications*, vol. 7 no. 12, December 2008, pp. 4896-4906.
- N. Chen & S. Jordan, "Downlink Scheduling with Guarantees on the Probability of Short-term Throughput", *IEEE Transactions on Wireless Communications*, vol. 8 no. 2, February 2009, pp. 593-598.
- S. Jordan, "A Layered United States Universal Service Fund for an Everything-over-IP world", *Telecommunications Policy*, vol. 33 no. 3-4, April-May 2009, pp. 111-128.
- S. Jordan, "Implications of Internet Architecture upon Net Neutrality", *ACM Transactions on Internet Technology*, vol. 9 no. 2, May 2009, pp. 5:1-5:28.
- S. Jordan, S. Charrington & P. Apivotanagul, "A Recursive Algorithm for Bandwidth Partitioning", *IEEE Transactions on Communications*, vol. 58 no. 4, April 2010, pp. 1026-1030.
- S. Jordan, "The Application of Net Neutrality to Wireless Networks Based on Network Architecture", *Policy & Internet*, vol. 2 no. 2, 2010.
- S. Jordan and A. Ghosh, "A Framework for Classification of Traffic Management Practices as Reasonable or Unreasonable", *ACM Transactions on Internet Technology*, vol. 10, no. 3, October 2010, pp. 12:1-12:23.
- S. Jordan and G. Shaffer, "A Proposed Device Attachment Statute for Converged Networks", *Journal of Information Policy*, vol. 1, 2011, pp. 394-424.
- S. Jordan, "Traffic Management and Net Neutrality in Wireless Networks", *IEEE Transactions on Network and Service Management*, vol. 8 no. 4, December 2011, pp. 297-309.

PROFESSIONAL DEVELOPMENT ACTIVITIES (during last 5 years):

Attended numerous conferences and P.I. meetings.

NAME – Alireza Kavianpour

EDUCATION

Ph.D., Computer Engineering, University of Southern California, 1978

M.S., Computer Engineering, Oklahoma State University, 1975

B.S., Electrical Engineering, Shiraz University, 1972

ACADEMIC EXPERIENCE

UC Irvine, Lecturer, 1998-present

DeVry University, Professor, 1990-present

UC Irvine, Researcher, EECS Department, 1988-1998

Sharif University of Technology, Associate Professor, 1978-1988

NON-ACADEMIC EXPERIENCE

Qualcomm, Inc., Consultant, 1996-1999

CERTIFICATIONS AND PROFESSIONAL REGISTRATIONS - none

CURRENT MEMBERSHIPS IN PROFESSIONAL ORGANIZATIONS

ASEE Member

ACM Member

IEEE Member

HONORS AND AWARDS

PRIDE Recipient (Professional Recognition of Integrity, Dedication and Excellence), DeVry University, 2007

UCI Outstanding Professor Award, 2006, 2004, 2003, and 2002

UCI Excellence in Teaching Award, 2002

Invited Lecturer for the Third College of Microprocessors, European Organization for Nuclear Research (CERN), Switzerland, Sept. 1985

Research and Teaching Scholarship, USC, 1975-1978

Research and Teaching Scholarship, OSU, 1974-1975

SERVICE ACTIVITIES within UNIVERSITY OF CALIFORNIA - none

SERVICE ACTIVITIES outside UNIVERSITY OF CALIFORNIA - none

SELECTED PUBLICATIONS AND PRESENTATIONS from the past five years:

1-"Testing Strategy in Multiprocessor Systems With Cube Connections" The 2011 American Society for Engineering Education Conference, ASEE, June 2011, Vancouver, Canada

2-"Advance Features of Hardware Description Language (VHDL) for Undergraduate Students"
The 2011 American Society for Engineering Education Conference, ASEE, June 2011,
Vancouver, Canada

3-"Automated Tracking Systems" The 3rd International Multi-Conference on Engineering and
Technological Innovation, IMETI, July 2010, Orlando, Florida, USA

4-"Automated Luggage Tracking System" The 2010 American Society for Engineering
Education Conference, ASEE, June 2010, Louisville, Kentucky, USA

5-"An Application of 68HC12 Micro-controller", The 2008 International Conference on
Embedded Systems and Applications, July 2008, Las Vegas, USA

6-"A Teaching Tool for Understanding Different Audio Filters ", The 2008 American Society for
Engineering Education Conference, March 2008, New Mexico, USA

7-"Conditional Connectivity of a Network", The 2007 World Congress in Computer Science,
Computer Engineering, and Applied Computing, June 2007, Las Vegas, USA

PROFESSIONAL DEVELOPMENT ACTIVITIES - none

NAME – David G. Kay

EDUCATION

B.A. magna cum laude in Linguistics from UCLA (June 1973)

Juris Doctor from Loyola Law School, Los Angeles; included on Dean's Honor List (May 1976)

M.S. in Computer Science from UCLA (June 1981)

ACADEMIC EXPERIENCE

2006 to present: Senior Lecturer with Security of Employment

2004 to 2006: Lecturer with Security of Employment

1990 to 2004: Lecturer

1981 to 1990: Visiting Assistant Professor, Visiting Lecturer, and Lecturer, Computer Science Department, UCLA

NON-ACADEMIC EXPERIENCE

Court-appointed special advisor, software copyright infringement, *Playmedia Systems, Inc. v. America Online, Inc.*, United States District Court for the Central District of California, Judge A. Howard Matz, 171 F. Supp.2d 1094 (2001)

Baltimore; Robbins & Keehn, San Diego; and Fulbright & Jaworski, Houston (1977–present)

CERTIFICATIONS AND PROFESSIONAL REGISTRATIONS

Admitted to practice law in California (California State Bar) after passing July 1976 bar exam

Admitted to practice, United States District Court for the Central District of California and United States Court of Appeals, Ninth Circuit

CURRENT MEMBERSHIPS IN PROFESSIONAL ORGANIZATIONS

Association for Computing Machinery; special interest groups on computer science education (SIGCSE); information technology education (SIGITE); security, audit, and control (SIGSAC); programming languages (SIGPLAN); software engineering (SIGSOFT); and computers and society (SIGCAS)

International Technology Law Association; American Bar Association (Section on Science and Technology); Los Angeles County Bar Association

HONORS AND AWARDS

ICS Dean's Award for Service (2009) and for Undergraduate Teaching (2012)

UCI Student Organization Advisor Participation Award, with A. van der Hoek (2006)

UCI TA Developer of the Year award, for "excellence in TA professional development and commitment to undergraduate education" (2002)

UCI Excellence in Teaching Award for Non-Senate Faculty (2001)

UCLA Distinguished Lecturer Award (1988)

Senior Instructor (1983) and Master Teacher (1984) designation, UCLA Extension

Phi Beta Kappa (1973); UCI Chapter (Nominating Committee, 1999–present; Vice President, 2006–07; President, 2007–08)

SERVICE ACTIVITIES within UNIVERSITY OF CALIFORNIA

Informatics Department Vice Chair for Student Affairs (2007–2012) and for Undergraduate Affairs (2012–present) • Computer Game Science Major Steering Committee (2010–present) • Chair, Informatics Department Graduate Curriculum and Policy Committee (2010–2012) • Chair, Informatics Department Undergraduate Curriculum and Policy Committee (2006–present) ICS Undergraduate/Educational Policy Committee, ICS (2000–03, 2004–06, 2007–10) Teaching assistant advisor, ICS (1990–present) • New faculty liaison/mentor for teaching issues (providing a variety of advice on classroom management, student expectations, plagiarism, grading, and other pedagogical issues as requested) (ICS, 1998–present) • Faculty co-advisor (with André van der Hoek) of Informatics Undergraduate Student Association (2002–present) • Founding advisor of UCI chapter of Upsilon Pi Epsilon computing honor society • ICS Lecturer Review Board (2004–present) Campuswide Honors Program Board (2012–present) • IRB Committee for Social and Behavioral Science (2010–present) • UTeach Program Steering Committee, UCI (2007–present) • Legal Studies Major Committee, UCI (2008–09) • Writing Review Planning Committee, UCI (2008–09) • Search committee for Campus Writing Coordinator and Composition Director, UCI (2006–07) Council on Educational Policy, UCI (2005–2009; chair 2006–07, during successful conclusion of a multi-year process to revise the campus general education requirements) University Committee on Educational Policy (2006–present; Vice Chair, 2009–10; Chair, 2010–11) • Member: Academic Council, Assembly of the Academic Senate, Academic Planning Council, Intersegmental Committee of Academic Senates, CSU Breadth Working Group (2010–11) Online Instruction Advisory Committee, UC Academic Planning Council (2010–2012) • Online Pilot Project Review Committee (2010–2011) • UCI representative to systemwide Assembly of the Academic Senate (2009–10)

SERVICE ACTIVITIES outside UNIVERSITY OF CALIFORNIA

ACM Task Force on Teaching-Oriented Faculty (2011) • Referee for ITiCSE 2002/2005/2009/2010, Annual Joint Conference on Integrating Technology into Computer Science Education Moot Court Judge, 10th Annual National Entertainment Law Moot Court Competition (November 2007) • Reviewer for journals *Communications of the ACM*, *Computers & Education*, *IEEE Transactions on Education*, *Computer Science Education*, and *Journal of Information Technology & Politics* (2000–present)

SELECTED PUBLICATIONS AND PRESENTATIONS from the past five years

“Recognizing the Most Influential CS Education Papers,” organizer of special session panel presentation with K. B. Bruce, M. Clancy, N. Dale, M. Guzdial, E. Roberts, Forty-First SIGCSE Technical Symposium on Computer Science Education (Milwaukee, March 2010)

“Why So Many? A Historical View of the Early Development of Programming Languages,” invited talk, Grinnell College Computer Science Department (October 2009)

“New Teaching Faculty Roundtable,” invited panel member, Fortieth SIGCSE Technical Symposium on Computer Science Education (Chattanooga, TN, March 2009)

“Quality of the Supervised Teaching Experience,” invited presentation, GAANN Technical Assistance Workshop, United States Department of Education (Washington, DC, January 2009)

PROFESSIONAL DEVELOPMENT ACTIVITIES Various continuing legal education courses (1977–present)

NAME - Stuart A. Kleinfelder

EDUCATION

Ph.D., Electrical Engineering, Stanford University, 2001
M.S., Electrical Engineering, University of California, Berkeley, 1992
B.S., Computer Science, State University of New York, 1984

ACADEMIC EXPERIENCE

UC Irvine, Associate Professor, 2007-present
UC Irvine, Assistant Professor, 2001-2007
Stanford University, Research Assistant, 1997- 2001

NON-ACADEMIC EXPERIENCE

VLSI Physics, Founder, January 1987-2001
University of California, Lawrence Berkeley National Laboratory, Staff Scientist: Physics Division, Staff Engineer: Engineering Division, 1986-2001
Radiation Monitoring Devices, Inc, Consultant, Consultation on radiation imaging sensor design., 2008-2009
Metrolaser, Inc, Consultant, Consultation on a high-speed digital schlieren camera system., 2007-2008
Siolink Inc, Consultant, Interim Chief Technical Officer; cell-phone camera systems, 2004
Nova R&D, Ca, Consultant, Design of scientific instrumentation integrated circuits., 2000
The California Institute of Technology, Ca, Consultant, Design of the Advanced Composition Explorer Satellite radiation hardened matrix VLSI readout circuit. The design was successfully launched with full functionality., 1991-1994
Goddard Space Flight Center, Ca, Consultant, Design of HgCdTe sensor instrumentation., 1993

CERTIFICATIONS AND PROFESSIONAL REGISTRATIONS - none

CURRENT MEMBERSHIPS IN PROFESSIONAL ORGANIZATIONS

IEEE Nuclear and Plasma Sciences Society, Member
Institute of Electrical and Electronics Engineers, Senior Member
International Society for Optical Engineering, Member

HONORS AND AWARDS

Fariborz Maseeh Teaching Excellence Award, 2005
Teaching Innovator of the Year Award, UCI's Division of Undergraduate Education, 2002-2003
R&D-100 Award, 1991

SERVICE ACTIVITIES within UNIVERSITY OF CALIFORNIA - none

SERVICE ACTIVITIES outside UNIVERSITY OF CALIFORNIA

Chair, Symposium on Radiation Measurements and Applications, 2008
Co-Editor, International Society for Optical Engineering's Conference on High Speed Photography and Photonics, 2005

Co-Editor, International Society for Optical Engineering's 26th International Congress on High Speed Photography and Photonics, 2004
UCI representative, panel member and contributor, Jacobs School of Engineering Sensor Networks Research Review, 2002

SELECTED PUBLICATIONS AND PRESENTATIONS from the past five years

Articles, Journal

Modeling and analysis of Charged-Particle CMOS image sensor arrays. Li, S., Matis, H. S., Xuong, N. H., Kleinfelder, S. A. *IEEE Transactions on Nuclear Science*, 56(3, Part 2), 1062-1068. (2009).

High-speed, high dynamic-range optical sensor arrays. Kleinfelder, S. A., Chang, S. W., Huang, W., Shah, A., Kwiatkowski, K. *IEEE Transactions on Nuclear Science*, 56(3, Part 2), 1056-1061. (2009).

Integrated sensors for charged-particle imaging using per-pixel correlated double sampling. Kleinfelder, S. A., Ahoovie, M. *IEEE Transactions on Nuclear Science*, 56(3, Part 2), 1069-1075. (2009).

Applications of Direct Detection Device in Transmission Electron Microscopy. Jin, L., Milazzo, A. C., Kleinfelder, S. A., Li, S., Leblanc, P., Duttweiler, F., Bower, J. C., Peltier, S. T., Ellisman, M., Xuong, N. H. *Journal of Structural Biology*, 161(3), 352-358. (2008).

Optimization of monolithic charged-particle sensor arrays. Kleinfelder, S. A., Li, S., Chen, Y. *Nuclear Instruments and Methods in Physics Research A*, 579(2), 695-700. (2007).

Books, Chapters

Future Directions for Camera Systems in Electron Microscopy. Xuong, N., Jin, L., Kleinfelder, S. A., Li, S., Leblanc, P., Duttweiler, F., Bouwer, J., Peltier, S., Milazzo, A., Ellisman, M. In J. R. McIntosh (Ed.), *Cellular Electron Microscopy*. (2007).

Conference/Workshop/Symposium Proceedings

Monte-Carlo Modeling of Monolithic CMOS Sensors for X-ray and Charged-Particle Imaging. Li, S., Matis, H., Kleinfelder, S. A. In *Proceedings of the SPIE*. Vol. 6707. (2007).

The Intermediate Size Direct Detection Detector for Electron Microscopy. Jin, L., Milazzo, A., Kleinfelder, S. A., Li, S., Leblanc, P., Duttweiler, F., Bouwer, J. C., Peltier, S. T., Ellisman, M., Xuong, N. In *Proceedings of the SPIE*. Vol. 6501. (2007).

Reports, Technical

A Heavy Flavor Tracker for Star. Xu et al. . LBNL-PUB-5509. (2006).

PROFESSIONAL DEVELOPMENT ACTIVITIES - none

NAME - Alfred Kobsa

EDUCATION

PhD, Computer Science, University of Vienna and Technical University of Vienna, 1985

MS, Computer Science, University of Linz, 1980

MBA, Business Information Systems, University of Linz, 1980

ACADEMIC EXPERIENCE

UC Irvine, Professor, 2003-2011

UC Irvine, Associate Professor, 2000-2003

Institute for Information Systems, Humboldt University, Visiting Scientist, 2005-2006

Dept. of Computer Science, University of Essen, Professor, 1995-2005

Dept. of Information Science, Univ. of Konstanz, Associate Professor, 1991-1995

NON-ACADEMIC EXPERIENCE

Microsoft Research, Visiting Researcher, September 2012-December 2012

CERTIFICATIONS AND PROFESSIONAL REGISTRATIONS

CURRENT MEMBERSHIPS IN PROFESSIONAL ORGANIZATIONS

ACM, CHI, AAAI, 2000-Present

HONORS AND AWARDS

Google Research Award, 2007

Humboldt Research Award, 2006

Best Evaluation Paper Award at the Ninth International Conference on User Modeling, 2003

UCI Chancellor's Award for Excellence in Fostering Undergraduate Research, University of California, Irvine, 2001

SERVICE ACTIVITIES within UNIVERSITY OF CALIFORNIA

Member, Steering Committee for Informatics Undergraduate Degree, October 2011-September 2012

Chair, Graduate Admissions Committee, October 2010-September 2011

Member, Dean's Advisory Board, September 2009-August 2011

Chair, Executive Committee, September 2009-August 2011

Faculty Chair, September 2009-August 2011

Member, Systemwide Library and Scholarly Information Advisory Committee (SLASIAC), September 2010-August 2013

Member, UCI Academic Senate Subcommittee on International Education, September 2009-August 2012

School Representative, UCI Divisional Senate, September 2009-August 2011

Member, UCI Libraries Advisory Group, November 2010-June 2011

Member, Reserve Council on Academic Personnel, October 1, 2008-September 30, 2009

Member, Academic Planning Group, October 1, 2006-August 30, 2009

Member, Council on Planning and Budget, October 1, 2006-August 30, 2009

SERVICE ACTIVITIES outside UNIVERSITY OF CALIFORNIA

Associate Editor, ACM Transaction on Intelligent Interactive Systems, October 2009 - Present
Editorial Review Board Member, Springer Lecture Notes in Computer Science, 2007 - Present
Editorial Review Board Member, Universal Access in the Information Society, 2000 - Present

SELECTED PUBLICATIONS AND PRESENTATIONS from the past five years

S. Patil, A. Kobsa, A. John, D. Seligmann, "Methodological Reflections on a Field Study of a Globally Distributed Software Project", *Information and Software Technology, Special Issue on Studying Work Practices in Global Software Engineering*, vol. 53, pp. 969-980, September 2011.

S. Patil, A. Kobsa, "Enhancing Privacy Management Support in Instant Messaging", *Interacting with Computers*, vol. 22, pp. 206-217, August 2010.

S. Anand, D. Jannach, B. Mobasher, A. Kobsa (Eds.), *Proceedings of the 9th Workshop on Intelligent Techniques for Web Personalization and Recommender Systems (ITWP 2011)*, in conjunction with IJCAI-2011, Barcelona, Catalonia, Spain. Barcelona, Catalonia, Spain., 2011.

P. De Bra, A. Kobsa, D. N. Chin (Eds.), *User Modeling, Adaptation, and Personalization: 18th International Conference, UMAP 2010, Big Island, Hawaii*. Berlin, Heidelberg, New York: Springer Verlag, 2010.

P. Xinru, B. P. Knijnenburg, A. Kobsa, *What a Tangled Web We Weave: Lying Backfires in Location-Sharing Social Media* In *16th ACM Conference on Computer Supported Cooperative Work and Social Computing (CSCW 2013)*. 2013.

K. P. Bart, S. Bostandjiev, J. O'Donovan, A. Kobsa, *Inspectability and Control in Social Recommenders*, 6th ACM Conference on Recommender Systems (RecSys 2012), Dublin, Ireland. 2012.

X. Page, A. Kobsa, B. P. Knijnenburg, *Don't Disturb My Circles! Boundary Preservation Is at the Center of Location-Sharing Concerns*, Proceedings of the 6th International AAAI Conference on Weblogs and Social Media, Dublin, Ireland. 2012.

B. Knijnenburg, M. Willemsen, A. Kobsa, *A Pragmatic Toolbox to Support the User-Centric Evaluation of Recommender Systems* In *Proceedings of the 5th ACM Conference on Recommender Systems*. Chicago, IL., 2011.

A. Kobsa, R. Nithyanand, G. Y. Tsudik, E. Uzun, *Usability of Display-Equipped RFID Tags for Security Purposes*, Computer Security – ESORICS 2011, Leuven, Belgium In V. Atluri, C. Diaz (Eds.), *Proceedings of the 2011 European Symposium on Research in Computer Security*. Berlin, Heidelberg, Germany. Springer Verlag, 2011.

PROFESSIONAL DEVELOPMENT ACTIVITIES-None

NAME - Fadi J. Kurdahi

EDUCATION

Ph.D., Computer Engineering, EE-Systems Dept., University of Southern California, 1987
M.S., Electrical Engineering, EE-Systems Dept., University of Southern California, 1982
Bachelor of Engineering, Electrical Engineering, EE Dept., American University of Beirut, 1981

ACADEMIC EXPERIENCE

UC Irvine, Professor, 1998-present
UC Irvine, Director, Center for Embedded Computer Systems, 2012-present
UC Irvine, Associate Professor, 1993-1998
UC Irvine, Assistant Professor, 1988-1993
Department of EE-Systems, University of Southern California, Research Assistant, 1983-1987

NON-ACADEMIC EXPERIENCE

Morpho Technologies, Technical Advisor, 2002-2006
Morpho Technologies, Member of the Board of Directors, 2000-2005
Morpho Technologies, Founder, VP of Engineering and Chief Technical Officer, 2000-2002
Emulex Corp, Irvine, CA, Consultant, SEU modeling, 2007-2008

CERTIFICATIONS AND PROFESSIONAL REGISTRATIONS - none

CURRENT MEMBERSHIPS IN PROFESSIONAL ORGANIZATIONS

Phi Beta Delta

HONORS AND AWARDS

International Board of Advisors, University of Balamand, Lebanon (member), 2007-present
Invited Scientist, World Economic Forum, 2009
AAAS Fellow, The American Association for the Advancement of Science, 2009
Distinguished Alumnus Award, Faculty of Engineering and Architecture, the American University of Beirut, 2008
Distinguished Arab Expatriate Scientist, Qatar Foundation for Science and Technology, 2007
ISQED Best Paper Award, IEEE International Conference on Quality Electronic Design (ISQED) 2006, 2006
IEEE Fellow, 2005

SERVICE ACTIVITIES within UNIVERSITY OF CALIFORNIA

ECE ABET representative for Computer Engineering, 2004-present
ECE Ph.D. Preliminary Exam Committee, 1987-present
ABET lead faculty for CpE, 2005-2006
Executive Committee, 2005-present
ABET committee, 2005-2006
UCI Committee on Academic Personnel, 2006-present
Associate Director, The Center for Embedded Computer Systems, 2005-present

SERVICE ACTIVITIES outside UNIVERSITY OF CALIFORNIA

Editor, several journals
IEEE CS Fellows Committee 2007-2009
Technical Program Committee, many conferences

SELECTED PUBLICATIONS AND PRESENTATIONS from the past five years

Articles, Journal

A Low Power JPEG2000 Encoder with Iterative and Fault Tolerant Error Concealment. Kurdahi, F. J., Makhzan, M., Eltawil, A., Djahromi, A. *IEEE Transactions on VLSI*, 17(6). (2009).

A Hierarchical Pipelining Architecture and FPGA Implementation for Lifting-Based 2-D DWT. Kurdahi, F. J., Zhang, C., Long, Y. *Journal of Real-Time Image Processing*, 2(4), 281-291. (2007).

Books, Chapters

An Alternative Organization of Defect Map for Defect-Resilient Embedded On-Chip Memories. Kurdahi, F. J., Yi, K., Cheng, S., Park, Y., Eltawil, A. In *Lecture Notes in Computer Science. 12th Asia-Pacific Computer Systems Architecture Conference proceedings*. (pp. 102-113). Springer-Verlag. (2007).

A coarse-grain dynamically reconfigurable system and compilation framework. Kurdahi, F. J., Fernandez, M., Hermida, R., Sanchez-Eles, M., Bagherzadeh, N., Maestre, R. In Vassliadis, Soudris (Eds.), *Fine- and Coarse-Grain Reconfigurable Systems*. Springer. (2007).

Conference/Workshop/Symposium Proceedings

Fault Tolerant Cache Architecture for Sub 500mv Operation: Resizable data composer Cache (RDC-Cache). Makhzan, Eltawil, Kurdahi, F. J. In *Proc. CASES 2009*. (2009).

Size-Reconfiguration Delay Trade-offs for a Class of DSP Blocks in Multi-mode Communication Systems. Gholamipour, Eslami, Eltawil, Kurdahi, F. J. In *Proc. FCCM 2009*. (2009).

On Chip Communication-Architecture Based Thermal Management for SoCs. Gupta, Pasricha, Dutt, Khouri, Abadir, Kurdahi, F. J. In *Proc. VLSI-DAT 2009*. (2009).

Letters/Notes

Design and Implementation of a Program Outcome Assessment Process for an ABET-Accredited Computer Engineering Program Proc. ASEE conference. Kurdahi, F. J., Shoemaker, J., LaRue, J. C. (2007).

ABET Accreditation Review – Due Process Response Report . Kurdahi, F. J. 99. (2006).

PROFESSIONAL DEVELOPMENT ACTIVITIES - ABET assessment workshop. Feb 2012

NAME - Richard H. Lathrop

EDUCATION

Reed College, Portland, OR, B.A., 1978, Mathematics
MIT, Cambridge, MA, S.M., 1983, Computer Science
MIT, Cambridge, MA, E.E., 1983, Electrical Engineering
MIT, Cambridge, MA, Ph.D., 1990, Artificial Intelligence
MIT, Cambridge, MA, Post-doc, 1990-1992, Computational Biology

ACADEMIC EXPERIENCE

UC Irvine, Assistant Professor, 1995-1997, Full-time
UC Irvine, Associate Professor, 1997-2003, Full-time
UC Irvine, Professor, 2003-present, Full-time

NON-ACADEMIC EXPERIENCE

4/1974-5/1975: Production Control Specialist/Programmer. U.S. Postal Service (Anchorage, AK)
5-10/1975, 5-9/1976: Business Programmer/Analyst. Alaskan Data Systems (Anchorage, AK)
8/1978-4/1979: Data Telecommunications Programmer. Progress Electronics (Portland, OR)
1/1980-5/1980: Business Software Consultant. Solid State Equipment, Ltd.
(Lower Hutt, New Zealand)
6-9/1982, 6-9/1983: Summer Staff. Hewlett-Packard Engineering Productivity Division
(Cupertino, CA)
6/1984-8/1991 (summers) Software Engineer/Consultant. Gould/A.M.I. VLSI CAD Research
Laboratory (South San Francisco, CA)
5/1989-12/1993: Co-founder, Senior Scientist, then Consultant. Co-inventor of US Patent No.
5,526,281. Arris Pharmaceutical Corp. (San Francisco, CA)
10/1992-6/1995: Research Scientist. Massachusetts Institute of Technology (Cambridge, MA)
4/2004-4/2009: Co-founder, acting Chief Information Officer, then Consultant. Co-inventor of
US Patent No. 7,262,031. CODA Genomics, Inc. (Laguna Hills, CA)

HONORS AND AWARDS

Elected to Phi Beta Kappa (the national academic honor society) (6/1978);
Best Paper Award, International Design Automation Conference, first author (7/1987);
Cover article, Communications of the ACM (first author) (11/1987);
Cover article, J. Molecular Biology, first author (2/1996);
UCI/ICS Outstanding Faculty Award for teaching and research (2/1997);
UCI Excellence in Teaching Award for undergraduate teaching (6/1998);
Innovative Application Award, AAAI/IAAI Conference, first author (7/1998);
Cover article, AI Magazine, first author (4/1999);
Best Paper Award, International Genome Informatics Conference, first author (12/2001);

UCI Chancellor's Award for Excellence in Fostering Undergraduate Research (5/2003);
Finalist, U.S. National Science Foundation Distinguished Teaching Scholar award (1/2004);
UCI Innovation Award (11/2005);
Dean's Award for Undergraduate Teaching (2/2009);
UCI Professor of the Year, Celebration of Teaching awards (5/2009);
Elected to Board of Directors, International Society for Computational Biology (ISCB) (7/2009).
President's Award, California State Competition, MathCounts (3/2011)

SELECTED RECENT PUBLICATIONS (from over 90 in the scientific and technical literature):

Bichutskiy, V., Colman, R., Brachmann, R.K., Lathrop, R.H. (2006) Heterogeneous Biomedical Database Integration Using a Hybrid Strategy: A p53 Cancer Research Database, *Cancer Informatics*, 2:277-287. PMID: PMC2675489

Danziger, S.A., et al., Lathrop, R.H. (2006) Functional census of mutation sequence spaces: The example of p53 cancer rescue mutants. *IEEE Trans. on Computational Biology and Bioinformatics*. 3(2):114-125. PMID: PMC2748235

Wallace RG, Hodac H, Lathrop RH, Fitch WM. (2007) A statistical phylogeography of influenza A H5N1. *Proc Natl Acad Sci USA*, Mar 13;104(11):4473-8. PMID: PMC1838625.

Danziger SA, Zeng J, Wang Y, Brachmann RK, Lathrop RH. (2007) Choosing where to look next in a mutation sequence space: Active Learning of informative p53 cancer rescue mutants. *Bioinformatics*, Jul 1;23(13). PMID: PMC2811495.

Larsen, L.S.Z., Wassman, C.D., Hatfield, G.W., Lathrop, R.H. (2008) Computationally Optimized DNA Assembly of synthetic genes. *Intl. J. Bioinformatics Research and Applications*, 4(3):324-36. PMID: PMC2668710.

Aphasizheva, I., Ringpis, G.-E., Weng, J., Gershon, P.D., Lathrop, R.H., Aphasizhev, R. (2009) Novel TUTase associates with an editosome-like complex in mitochondria of *Trypanosoma brucei*. *RNA*;15(7):1322-37. PMID: PMC2704088.

Danziger, S.A., Baronio, R., Ho, L., Hall, L., Salmon, K., Hatfield, G.W., Kaiser, P., Lathrop, R.H. (2009) Predicting Positive p53 Cancer Rescue Regions Using Most Informative Positive (MIP) Active Learning. *PLoS Computational Biology*, Sept; 5(9):e1000498. PMID: PMC2742196

Chan SW, Hung SP, Raman SK, Hatfield GW, Lathrop RH, Da Silva NA, Wang SW. (2010) Recombinant human collagen and biomimetic variants using a de novo gene optimized for modular assembly. *Biomacromolecules*. Jun 14;11(6):1460-9.

Baronio R, Danziger SA, Hall LV, Salmon K, Hatfield GW, Lathrop RH, Kaiser P. All-codon scanning identifies p53 cancer rescue mutations. (2010) *Nucleic Acids Res*. Nov 1;38(20):7079-88. Epub 2010 Jun 25. PMID: PMC2978351.

Ringpis, GE, Lathrop, RH, Aphasizhev, R (2010) iCODA: RNAi-based Inducible Knock-in System in *Trypanosoma brucei*. *Methods in Molecular Biology*, 718:23-37.

NAME - Chin C. Lee

EDUCATION

PhD, Electrical Engineering, Carnegie-Mellon University, 1979
MS, Electronics, National Chiao-Tung University, 1973
BS, Electrical Engineering, National Chiao-Tung University, 1970

ACADEMIC EXPERIENCE

UC Irvine, Professor, 1994-present
UC Irvine, Associate Professor, 1990-1994
UC Irvine, Assistant Professor, 1984-1990
UC Irvine, Specialist, 1980-1984
Carnegie-Mellon University, Research Associate, 1979-1980
Naval Academy, Instructor, 1970-1971

NON-ACADEMIC EXPERIENCE

Viclite Optical Company, Optical Engineer, 1973-1974
FLIR Systems, Inc, Goleta, CA, Consultant, 2008
Qualcom, Inc, San Diego, CA, Consultant, 2003-2007

CERTIFICATIONS AND PROFESSIONAL REGISTRATIONS

CURRENT MEMBERSHIPS IN PROFESSIONAL ORGANIZATIONS

Institute of Electrical and Electronics Engineers, Inc. (IEEE), 1974-Present
Tau Beta Pi, 1986

HONORS AND AWARDS

IEEE CPMT (Components, Packaging, and Manufacturing Technology) Society Electronic Manufacturing Technology Award, 2011
IEEE ECTC (Electronic Components and Technology Conference) ten-year Service Award, 2009
IEEE CPMT (Components, Packaging, and Manufacturing Technology) Society Exceptional Technical Achievement Award, 2007
Listed in Thomson ISI citation data base among 270 highly cited researchers in engineering category in the world, 2004
Fellow, IEEE, 2001
Fellow of the Photonics Society of Chinese Americans, 2001
School of Engineering Outstanding Assistant Professor Award, UCI, 1984
Best Paper Award, IEEE Reliability Physics Symposium, 1979

SERVICE ACTIVITIES within UNIVERSITY OF CALIFORNIA

Associate Chair, EECS Department, July 2007-August 2009
Director, Materials and Manufacturing Technology graduate program, School of Engineering, 2005-Present

SERVICE ACTIVITIES outside UNIVERSITY OF CALIFORNIA

SELECTED PUBLICATIONS AND PRESENTATIONS from the past five years

Articles, Journal

Chu Hsuan Sha and Chin C. Lee, "Low Temperature Solid State Silver Bonding of Silicon Chips to Alumina Substrates," IEEE Trans. Components and Packaging Technology, 1, no. 12, pp. 1983-1987, Dec. 2011.

Chu Hsuan Sha, Pin J. Wang, Wen P. Lin, and Chin C. Lee, "Solid State Bonding of Silver Foils to Metallized Alumina Substrates at 260°C," ASME J. Electronic Packaging, 2, 133, no. 4, pp. 041007-1 to -3, Dec. 2011.

Kyu Tak Son and Chin C. Lee, "Bonding and Impedance Matching of Acoustic Transducers Using Silver Epoxy," Ultrasonics, 52, pp.555-563, 2011.

Chu Hsuan Sha and Chin C. Lee, "40 micron Silver Flip-Chip Technology with Solid-state Bonding," ASME J. Electronic Packaging, 133, no. 3, pp. 031012-1 to 031012-4, Sept. 2011.

Wen P. Lin and Chin C. Lee, "Fluxless Bonding of Bismuth Telluride Chips on Alumina Using Ag-In System for High Temperature Thermoelectric Modules," IEEE Trans. Components, Packaging and Manufacturing Technology, 1, no. 9, pp.1311-1318, Sept. 2011.

Kyu Tak Son and Chin C. Lee, "Design and Reliability Study of Acoustic Wedge Transducer Assemblies for Outdoor Touch Panels," IEEE Trans. Components, Packaging, and Manufacturing Technology, 1, no. 8, 1178-1185, August 2011.

Chu Hsuan Sha and Chin C. Lee, "Microstructure and Surface Treatment of 304 Stainless Steel for Electronic Packaging," ASME J. Electronic Packaging, 133, pp. 021005-1 to -4, June 2011.

Chu Hsuan Sha and Chin C. Lee, "Low-pressure Solid State Gold Bonding of Si Chips on Alumina Substrates," ASME J. Electronic Packaging, 133, pp. 021003-1 to -5, June 2011.

Chu Hsuan Sha and Chin C. Lee, "Low Temperature Bonding to 304 Stainless Steel for High Temperature Electronic Packages," IEEE Trans. Components, Packaging and Manufacturing Technology, 1, no.4, pp.479-485, April 2011.

Wen P. Lin, Daniel E. Wesolowski, and Chin C. Lee, "Barrier/Bonding Layers on Bismuth Telluride (Bi_2Te_3) for High Temperature Thermoelectric Modules," J. Materials Science: Materials in Electronics, 22, pp.1313-1320, 2011.

Kyu Tak Son and Chin C. Lee, "Multiple-target Laser Range-finding Receivers Using Silicon Photomultiplier Arrays," IEEE Trans. Instrumentation and Measurement, 59, 11, pp. 3005-3011, Nov. 2010.

Kyu Tak Son and Chin C. Lee, "Input Impedance Matching of Acoustic Transducers Operating at Off-Resonance Frequencies," IEEE Trans. Ultrasonics, Ferroelectrics and Frequency Control, 33, pp. 10-15, March 2010.

Pin J. Wang and Chin C. Lee, "Silver Flip Chip Technology Using Solid-state Bonding," J. Electronic Packaging, 9/302010 published online, 132, Issue 3.

Fluxless Bonding of Silicon Wafers to Molybdenum Substrates Using Electroplated Tin-rich Solder.

Wang, P. J., Kim, J. S., Kim, D., Lee, C. C. J. Materials Science: Materials in Electronics, 20, 334-342. (2009).

Direct Silver to Copper Bonding Process. Wang, P. J., Kim, J. S., Lee, C. C. J. Electronic Packaging, 130, 45001-1 to -4. (2008).

Very High Temperature Joints between Si and Ag-Copper Substrate Made at Low Temperature Using InAg System. Kim, J. S., Wang, P. J., Lee, C. C. IEEE Trans. Components and Packaging Technology, 31, 782-789. (2008).

Topology Bandpass Filters in Coplanar Strip Lines. Song, Y. K., Lee, C. C. International J. RF and Microwaves Computer-aided Engineering, 18, 426-435. (2008).

Characterization of Coplanar Strip Lines on Dielectric Boards for RF and Microwave Applications. Song, Y. K., Lee, C. C. International Journal of RF and Microwave Computer-aided Engineering, 18, 76-85. (2008).

PROFESSIONAL DEVELOPMENT ACTIVITIES

NAME - Henry P. Lee

EDUCATION

Ph.D., Electrical Engineering, University of California, Berkeley, 1989
B.S., Electrical Engineering, University of California, Berkeley, 1983

ACADEMIC EXPERIENCE

UC Irvine, Professor, 2004-present
UC Irvine, Associate Professor, 1996-2004
UC Irvine, Assistant Professor, 1992-1996

NON-ACADEMIC EXPERIENCE

Member of Technical Staff (post-doctoral), 1990-1992
Rainbow Communications, Consultant, 2002-2004
Physical Optics Corp, Consultant, 2000-2003
Intelligent Epitaxy Technology, Consultant, 1998
AT&T Bell Lab, Consultant, November 1996
Bell Communications Research, Red Bank NJ, Consultant, 1992

CERTIFICATIONS AND PROFESSIONAL REGISTRATIONS - none

CURRENT MEMBERSHIPS IN PROFESSIONAL ORGANIZATIONS - none

HONORS AND AWARDS

Irvine Research Fellowship, 1993-1994

SERVICE ACTIVITIES within UNIVERSITY OF CALIFORNIA - none

SERVICE ACTIVITIES outside UNIVERSITY OF CALIFORNIA

Program Committee & Session Chair, APOC, 2006
Chair, Asian Pacific Optical Communication Conference (APOC), 2005
Program Committee, IEEE Sensor Conference, 2005
Program Committee, BGPP, 2005
NSF Panel Review, 2005
Chair, Pacific Rim CLEO, 2003
Chair, "Grating Properties II", Bragg Grating Photosensitivity and Pooling of Glass Waveguide (BGPP), 2003
Program committee, Bragg Grating Photosensitivity and Pooling of Glass Waveguide (BGPP), 2003
Session Presider, 'Optical Amplifier', 87th OSA Annual Meeting, 2003
NSF Panel Review, 2003
Chair, 10th International conference on MBE, 2000
Technical program committee, Engineering Foundation Conference on "Intelligent Epitaxy II", 1997
Organizing committee, Ninth International Conference on Molecular Beam Epitaxy, 1996
Technical program committee, TMS Electronic Materials Conference, 1996

Co-Chair, Ninth International Conference on Molecular Beam Epitaxy, on "III-V Growth", 1996
Co-Chair, TMS Electronic Material Conference, on "Real-time Monitoring and Control", 1996
Co-Chair, Engineering Foundation Conference on Intelligent Epitaxy, "Pyrometry and temperature monitoring", 1995
Co-Chair, Spring 1994 MRS meeting, Symp. B, on "In situ monitoring/control and production issues", 1995

SELECTED PUBLICATIONS AND PRESENTATIONS from the past five years

Articles, Journal

P. Z. Dashti, F. Alhassen, H. P. Lee, "Observation of Orbital Angular Momentum Transfer between Acoustic and Optical Vortices in Optical Fiber", *Phys. Rev. Lett*, vol. 96, pp. 043604, September 2006.

PRESENTATIONS

Generation of vortices in optical fiber via acousto-optic interaction, LEOS Summer Topical Meeting, Quebec City, Canada, July 17, 2006 - July 19, 2006.

Quantitative characterization of polarization cancellation for optical devices via bi-direction transmission, CLEO, Long Beach, May 21, 2006 - May 26, 2006.

Transfer of orbital angular momentum between acoustic and optical vortices in optical fiber, Optical Fiber Communication Conference (OFC), Anaheim, CA, March 6, 2006 - March 10, 2006.

PROFESSIONAL DEVELOPMENT ACTIVITIES - none

NAME: Chen Li

EDUCATION

Ph.D., Computer Science, Stanford University, 2001

M.S., Computer Science, Tsinghua University, China, 1996

B.S., Computer Science, Tsinghua University, China, 1996

B.S. (Minor), Enterprise Management, Tsinghua University, China, 1994

ACADEMIC EXPERIENCE

UC Irvine, Associate Professor, 2007-present, Full-time

UC Irvine, Assistant Professor, 2001-2007, Full-time

NON-ACADEMIC EXPERIENCE

2009 – Present, Founder, Bimable Technology Inc., Irvine, CA

9/2005 – 12/2007, Visiting Research Scientist, Google, Santa Monica/Irvine, CA

2000, Supplemental Research Associate, IBM Almaden Research Center, San Jose, CA

2000, Consultant, Common Object Inc., San Mateo, CA

1998, Research Intern, Hewlett Packard Labs, Palo Alto, CA

1995, Student Visitor, Chinese University of Hong Kong, Hong Kong

CERTIFICATIONS AND PROFESSIONAL REGISTRATIONS: none

CURRENT MEMBERSHIPS IN PROFESSIONAL ORGANIZATIONS: ACM and IEEE

HONORS AND AWARDS

UCI ICS Dean's Award for excellence in Mid-Career Research, 2009.

NSF CAREER Award, 2003.

Entrance exams waived, Tsinghua University, 1994 and 1989.

SERVICE ACTIVITIES within UNIVERSITY OF CALIFORNIA

Committee Member of Council on Research, Computing and Libraries (CORCL), 2010 - present

Member of Admission Committee in ICS, multiple years from 2001 to present

SERVICE ACTIVITIES outside UNIVERSITY OF CALIFORNIA

Members and organizers of committees of various conferences and journals, such as ACM SIGMOD, PODS, VLDB, ICDE, ICDT, PODS, TODS, TKDE, VLDB Journal.

SELECTED PUBLICATIONS AND PRESENTATIONS from the past five years:

Processing Spatial-Keyword (SK) Queries in Geographic Information Retrieval (GIR) Systems, Ramaswamy Hariharan, Bijit Hore, Chen Li, Sharad Mehrotra, SSDBM, 2007.
Data Exchange with Arithmetic Comparisons, Foto Afrati, Chen Li, and Vassia Pavlaki. EDBT 2008.

Efficient Merging and Filtering Algorithms for Approximate String Searches, Chen Li, Jiaheng Lu, Yiming Lu, ICDE 2008, 257-266.

Supporting Keyword Queries on Structured Databases with Limited Search Interfaces Nurcan Yuruk, Xiaowei Xu, Chen Li, Jeffrey Xu Yu, DASFAA 2008.

Cost-Based Variable-Length-Gram Selection for String Collections to Support Approximate Queries Efficiently, Xiaochun Yang, Bin Wang, and Chen Li, ACM SIGMOD 2008.

\Space-Constrained Gram-Based Indexing for Efficient Approximate String Search, Alexander Behm, Shengyue Ji, Chen Li, and Jiaheng Lu, ICDE 2009.

Best-Effort Top-k Query Processing Under Budgetary Constraints, Michal Shmueli-Scheuer, Chen Li, Yosi Mass, Haggai Roitman, Ralf Schenkel, and Gerhard Weikum, ICDE 2009.

Guoliang Li, Shengyue Ji, Chen Li, Jianhua Feng: Efficient type-ahead search on relational data: a TASTIER approach, SIGMOD Conference, 2009.

Shengyue Ji, Guoliang Li, Chen Li, Jianhua Feng: Efficient interactive fuzzy keyword search, International World Wide Web Conference, 2009.

Efficient Approximate Search on String Collections (Tutorial), Marios Hadjieleftheriou, Chen Li, PVLDB 2009.

Efficient parallel set-similarity joins using MapReduce, Rares Vernica, Michael J. Carey, Chen Li. SIGMOD 2010.

Hybrid Indexing and Seamless Ranking of Spatial and Textual Features of Web Documents, Ali Khodaei, Cyrus Shahabi, Chen Li, DEXA 2010.

Supporting Location-Based Approximate-Keyword Queries. Sattam Alsubaiee, Alexander Behm, Chen Li, ACM GIS 2010.

PROFESSIONAL DEVELOPMENT ACTIVITIES: None

NAME - Guann-Pyng Li

EDUCATION

Ph.D., Electrical Engineering, University of California, Los Angeles, 1983
M.S., Electrical Engineering, University of California, Los Angeles, 1982
B.S., Electrical Engineering, National Cheng Kung University, 1978

ACADEMIC EXPERIENCE

UC Irvine, Professor, 1994-present
UC Irvine, Associate Professor, 1990-1994
UC Irvine, Assistant Professor, 1988-1990

NON-ACADEMIC EXPERIENCE

IBM, Thomas J. Watson Research Center, Manager of Advanced Bipolar Technology Group, silicon science and technology, 1986-1988
IBM Thomas J. Watson Research Center, Research staff member, 1983-1986
Industrial Technology Research Institute, Taiwan ROC, Consultant, 1995-present
Qplus Inc, Consultant, 2000-2001
Epson Research & Development, Inc, Consultant, 1998
Rockwell International, Consultant, 1994-1998
Silicon System Inc. (Texas Inst. Inc.), Consultant, 1996-1997

CERTIFICATIONS AND PROFESSIONAL REGISTRATIONS - none

CURRENT MEMBERSHIPS IN PROFESSIONAL ORGANIZATIONS

Eta Kappa Nu, Member, 1991
IEEE, Member, 1988

HONORS AND AWARDS

UCI Outstanding Engineering Professor of the year in EECS, 2007
Best paper award in 2005 ITC International Telemetering Conference, 2005
UCI Innovators Award, 2005
UCI Outstanding Engineering Professor of the year, 2001
Who's Who Among America's Teachers, 1999
Who's Who Among America's Teachers, 1998
UCI Outstanding Engineering Professor of the year, 1997
School of Engineering Outstanding Assistant Professor Award, University of California, Irvine, 1990
IBM Research Division Outstanding Contribution Award, 1987
Recipient of NCKU honor student award, 1978
President of Electrical Engineering Student Association, NCKU, 1977

SERVICE ACTIVITIES within UNIVERSITY OF CALIFORNIA

Member, SOE Research Strategic Planning committee, 2009-present
SOE Engineering Unit 3 Planning Committee, 2004-present
Director, Integrated Nanosystems Research Facility (INRF), 1998-present

Director, SOE INRF, 1998-present
Material Science Interdisciplinary Program Committee, 1988-present
Committee co-chair, UCOP CCSIP Review, 2009-present
Director, California Institute for Telecommunications and Information Technology (Calit2),
2007-present
Director, Calit2 Irvine division, 2007-present
Director, LifeChips Center, 2006-present
UC SMART Executive Committee member representing Irvine campus, 1998-present

SERVICE ACTIVITIES outside UNIVERSITY OF CALIFORNIA

Co-founder, Intellego LLC., 2006-present
Reviewer, Extramural Funding, NSF, 2006-present
Reviewer, Extramural Funding, NIH, 2004-present
Reviewer, IEEE Transactions on Electron Devices IEEE Electron Device Letters, 1985-present
Reviewer, Journal Article, Journal of Applied Physics Applied Physics Letters, 1983-present

SELECTED PUBLICATIONS AND PRESENTATIONS from the past five years

Articles, Journal

HBT Based Cascode Amplifier with High Frequency Loss Compensation Network. Wang, R., Gao, H., Chatchaikarn, A., Li, G. P. *Microwave and Optical Technology Letters*. (2009).

Performance Improvement of Organic Thin-Film Transistors by Solution-Processed Crystallization of Pentacene at Room Temperature. Liu, H. W., Chang, H. J., Li, G. P., Bachman, M. *IEEE Electron Device Letters*, 30(4), 346 – 348. (2009).

Characterization of low-temperature silicon nitride films produced by inductively coupled plasma chemical vapor deposition. Xu, Q., Ra, Y., Bachman, M., Li, G.-P. *J. Vac. Sci. Technol. A*, 27(145). (2009).

Conference/Workshop/Symposium Proceedings

MICROPALLET ARRAYS FOR DETECTION OF RARE SUBPOPULATIONS OF ADHERENT CELLS. Gunn, N. M., Bachman, M., Li, G. P., Nelson, E. L. *13th International Conference on Miniaturized Systems for Chemistry and Life Sciences*. (2009).

An integrated bubble-based valve controlled by temperature gradient. Wu, L., Xu, W., Li, G. P., Bachman, M. *13th International Conference on Miniaturized Systems for Chemistry and Life Sciences*. (2009).

A Label-Free Biosensor Based on Protein-Formed Diffraction Grating on Optical Waveguide. Lai, Z., Wang, Y., Allbritton, N., Li, G. P., Bachman, M. *12th International Conference on Miniaturized Systems for Chemistry and Life Sciences*, (pp. 925-927). (2008).

PROFESSIONAL DEVELOPMENT ACTIVITIES - none

NAME - Kwei-Jay Lin

EDUCATION

Ph.D., Computer Science, University of Maryland, 1985
M.S., Computer Science, University of Maryland, 1980
B.S., Electrical Eng, National Taiwan University, 1976

ACADEMIC EXPERIENCE

UC Irvine, Professor, 1997-present
UC Irvine, Associate Professor, 1993-1997
University of Illinois, Associate Professor, 1991-1993
University of Illinois, Assistant Professor, 1985-1991

CURRENT MEMBERSHIPS IN PROFESSIONAL ORGANIZATIONS

IEEE, Fellow

HONORS AND AWARDS

Member, Phi Tau Phi Scholastic Honor Society of America
Adjunct Professor, National Tsinghua University, Taiwan
Visiting Chair Research Fellow, Academia Sinica, Taiwan, 2007-2008
Advisory Committee Member, Institute of Information Science, Academia Sinica, 2006-2008
Keynote Speaker, IEEE 24th International Conference on Advanced Information Networking and Application (AINA 2010), Perth, Australia, April 2010
Keynote Speaker, IEEE International Conference on e-Business Engineering (ICEBE 2010), Shanghai, China, November 10-12, 2010
Keynote Speaker, International Computer Symposium (ICS), Taiwan, 2010

SERVICE ACTIVITIES within UNIVERSITY OF CALIFORNIA

Member, Academic Senate Board on Undergraduate Scholarships, Honors & Financial Aids (2008-2011, Chair 2009-2010)
Secretary of the HSSoE Faculty, 2004/2005

SERVICE ACTIVITIES outside UNIVERSITY OF CALIFORNIA

Co-Chair, IEEE Technical Committee on Business Informatics and Systems, 2003-present
Editor in Chief, Springer Journal of Service Oriented Computing and Applications (SOCA), 2006-present
Editor in Chief, Software Publication Track, Journal of Information Science and Engineering, 2005-present
Conference Co-Chair, IEEE International Conference on Service-Oriented Computing and Applications, Perth, Australia, 2010
General Co-Chair, IEEE International Conference on E-Commerce Technology and Enterprise Computing, 2009
Program Committee Co-Chair, International Conference on Service-Oriented Computing (ICSOC 2007), 2007
General Co-Chair, IEEE Joint Conference on E-Commerce Technology and Enterprise Computing (CEC/EEE 2006), 2006

SELECTED PUBLICATIONS AND PRESENTATIONS from the past five years

Articles, Journal

The Design and Implementation of Service Process Reconfiguration with End-to-End QoS Constraints. K.J. Lin, J. Zhang, Y. Zhai, and B. Xu, *Journal on Service-Oriented Computing and Applications*, Vol. 4, No. 3, pp. 157-168(2010).

Building Accountability Middleware to Support Dependable SOA. Kwei-Jay Lin, Mark Panahi, Yue Zhang, Jing Zhang, Soo-Ho Chang. *IEEE Internet Computing* 13(2): 16-25 (2009).

A service accountability framework for QoS service management and engineering. Kwei-Jay Lin, Soo-Ho Chang, *Inf. Syst. E-Business Management* 7(4): 429-446 (2009).

E-Commerce Technology: Back to the Prominent Future. Lin, K.-J. *IEEE Internet Computing*, 60-65. (2008).

Efficient Exact Test for Rate Monotonic Schedulability using Large Period-Dependent Initial Values. Lu, W.-C., Lin, K.-J., Wei, H.-W., Shih, W.-K. *IEEE Trans. on Computers*, 57(5), 648-659. (2008).

Evaluating Transaction Trust and Risk Levels in Peer-to-Peer E-commerce Environments. Wang, Y., Wong, D. S., Lin, K.-J., Varadharajan, V. *Journal of Information Systems and e-Business Management (ISeB)*, 6(1), 25-48. (2008).

Generalized rate monotonic schedulability bounds using relative period ratios. Wei, H.-W., Lin, K.-J., Lu, W.-C., Shih, W.-K. *Information Processing Letters*, 107(5). (2008).

Reputation-Oriented Trustworthy Computing in E-Commerce Environments. Wang, Y., Lin, K.-J. *IEEE Internet Computing*, 55-59. (2008).

Schedulability issues for EDZL scheduling on real-time multiprocessor systems. Chao, Y.-H., Lin, S.-S., Lin, K.-J. *Information Processing Letters*, 107(5). (2008).

Accountability Monitoring and Reasoning in Service-Oriented Architectures. Zhang, Y., Lin, K.-J., Hsu, J. Y. *Journal on Service-Oriented Computing and Applications*, 1(1), 35-50. (2007).

Building Web 2.0. Lin, K.-J. *IEEE Computer*, 93-94. (2007).

Efficient Algorithms for Web Services Selection with End-to-end QoS Constraints. Yu, T., Zhang, Y., Lin, K.-J. *ACM Transactions on the Web (TWEB)*, 1(1). (2007).

Rate Monotonic Schedulability Tests Using Period-Dependent Conditions. Lu, W.-C., Lin, K.-J., Wei, H.-W., Shih, W.-K. *Real-Time Systems Journal*, 37(2), 123-138. (2007).

PROFESSIONAL DEVELOPMENT ACTIVITIES - none

NAME - Aditi Majumder

EDUCATION

Ph.D, Computer Science, University of North Carolina - Chapel Hill, 2003
B.E., Computer Science and Engineering, Jadavpur University, Kolkata, India, 1996

ACADEMIC EXPERIENCE

UC Irvine, Associate Professor, 2008-present, Full-time
UC Irvine, Assistant Professor, 2003-2008, Full-time

NON-ACADEMIC EXPERIENCE

Ostendo Technologies, Carlsbad, CA, *Consultant*, 2005-2007
Ostendo Technologies, Carlsbad, CA, *Advisory Board Member*, 2005-2008
Walt Disney Imagineering, Glendale, CA, *Advisory Consultant*, 2009-2010
Argonne National Laboratories, IL, *Student Research Fellow*, 2001-2003
Argonne National Laboratories, IL, *Givens Associate*, Summer 2001
Bell Laboratories, Holmdel, NJ, *Summer Intern*, 1999

CERTIFICATIONS AND PROFESSIONAL REGISTRATIONS – none

CURRENT MEMBERSHIPS IN PROFESSIONAL ORGANIZATIONS – IEEE

HONORS AND AWARDS

Deans Mid-Career Research Award, School of Information and Computer Science, UCI, 2011
Best Paper Award, IEEE Virtual Reality, 2010
Best Paper Award, IEEE/ACM Workshop on Projector Camera Systems, 2010
Second Best Paper Award, IEEE Visualization, 2009
Faculty Research Incentive Award, School of Information and Computer Science, UCI, 2009
NSF CAREER Award, 2009
Young Scientist of the year, Argonne National Laboratories, 2002
Link Fellow, 2000-2001

SERVICE ACTIVITIES within UNIVERSITY OF CALIFORNIA

Member of Student Outreach, Access and Retention (SOAR) Committee, 2010
Member of Graduate Admissions Committee, 2006-2008, 2010
Member of Faculty Recruitment Committee, 2007

SERVICE ACTIVITIES outside UNIVERSITY OF CALIFORNIA

Program Co-Chair, IEEE Virtual Reality, 2011
Program Committee, IEEE Visualization 2011
Program Chair, IEEE/ACM Workshop on Projector Camera Systems, 2009
General Co-Chair, ACM Virtual Reality Software and Technology, 2007
General and Program Co-Chair, IEEE/ACM Workshop on Projector Camera Systems, 2005
Program Committee, IEEE/ACM Workshop on Projector Camera Systems, 2005-2011

SELECTED PUBLICATIONS AND PRESENTATIONS from the past five years:

1. "A Scalable Distributed Paradigm for Multi-User Interaction with Tiled Rear Projection Display Walls", *Pablo Roman, Maxim Lazarov, Aditi Majumder*, IEEE Transactions on Visualization and Computer Graphics, **16:6**, pp. 1623-1632,(2010).
2. "Projector Placement Planning for High Quality Visualizations on Real World Colored Objects", *Alvin J. Law, Daniel Aliaga, Aditi Majumder*, IEEE Transactions on Visualization and Computer Graphics, **16:6**, pp. 1633-1642, (2010).
3. "Scalable Multi-View Registration for Multi-Projector Displays on Vertically Extruded Surfaces", *Behzad Sajadi, Aditi Majumder*, Computer Graphics Forum, **29:3**, pp.1063-1072, (2010).
4. "Markerless View-Independent Geometric Registration of Multiple Distorted Projectors on Vertically Extruded Surface Using Single Uncalibrated Camera", *Behzad Sajadi, Aditi Majumder*, IEEE Transaction on Visualization and Computer Graphics, **15:6**, pp. 1307-1316, (2009). – **Second Best Paper Award** at IEEE Visualization, 2010.
5. "Color Seamlessness in Multi-Projector Displays Using Constrained Gamut Morphing", *Behzad Sajadi, Maxim Lazarov, Aditi Majumder, M. Gopi*, IEEE Transaction on Visualization and Computer Graphics, **15:6**, pp. 1317-1326, (2009).
6. "Registration Techniques for Using Imperfect and Partially Calibrated Devices in Planar Multi-Projector Displays", *Ezekiel Bhasker, Ray Juang, Aditi Majumder*, IEEE Transactions on Visualization and Computer Graphics, **13:6**, pp. 1368-1375, (2007).
7. "Perception Based Contrast Enhancement of Images", *Aditi Majumder, Sandra Irani*, ACM Transactions on Applied Perception, **4:3**, Article 17, November, (2007).
8. "ADICT: Accurate Direct and Inverse Color Transformation", *Behzad Sajadi, Aditi Majumder*, European Conference on Computer Vision (ECCV), Crete, Greece, (2010).
9. "Automatic Registration of Multiple Projectors on Swept Surfaces", *Behzad Sajadi, Aditi Majumder*, ACM Virtual Reality and Software Technology, Hong Kong, November (2010).
10. "Auto-Calibration of Cylindrical Multi-Projector Displays", *Behzad Sajadi, Aditi Majumder*, IEEE Virtual Reality, Waltham, March, (2010). – **Best Paper Award**
11. "Display Gamut Reshaping for Color Emulation and Balancing", *Aditi Majumder, Robert G. Brown, Hussein S. El-Ghoroury*, IEEE/ACM Workshop on Projector-Camera Systems at IEEE CVPR, San Francisco, June (2010). – **Best Paper Award**

PROFESSIONAL DEVELOPMENT ACTIVITIES - none

NAME - Athina Markopoulou

EDUCATION

Ph.D., Electrical Engineering, Stanford University, 2002

M.S., Electrical Engineering, Stanford University, 1998

Diploma, Electrical and Computer Engineering, National Technical University of Athens, 1996

ACADEMIC EXPERIENCE

UC Irvine, Associate Professor, 2012-present

UC Irvine, Assistant Professor, 2006-2012

Sprint Advanced Technologies Lab, IP Group, Postdoctoral Member of Technical Staff, 2003

NON-ACADEMIC EXPERIENCE

Arastra Inc, Research Scientist, Member of the Technical Staff, 2005

Cisco Systems, Gigabit Ethernet Switching Group, Research Intern, 2000

Nokia Research Center, Research Intern, 1999

Aloha Networks Inc, Research Intern, 1998

Institut National des Télécommunications Francaises (I.N.T.), Summer intern, 1994

CERTIFICATIONS AND PROFESSIONAL REGISTRATIONS - none

CURRENT MEMBERSHIPS IN PROFESSIONAL ORGANIZATIONS - none

HONORS AND AWARDS

NSF CAREER Award, 2008

One of the 8 best papers in IEEE INFOCOM 2002, 2002

L. Voudouri Foundation fellowship, 2001-2002

I. Latsis Foundation fellowship, 1997-2000

3rd medal of excellence (in a class of ~ 250), National Technical University of Athens, 1998

Departmental Assistantship, Dept. of Electrical Engineering, Stanford, 1996-1997

Fulbright Scholarship awardee, 1996-1997

I. Latsis Foundation fellowship, 1992-1996

State Scholarship Foundation (IKY), 1992-1994

Technical Chamber of Greece (TEE), 1993

Distinction, Hellenic Olympiads in Mathematics (nation-wide), 1991

3rd prize, Hellenic Olympiads in Mathematics (nation-wide), 1988

1st prize, Hellenic Olympiads in Mathematics (nation-wide), 1987

SERVICE ACTIVITIES within UNIVERSITY OF CALIFORNIA - none

SERVICE ACTIVITIES outside UNIVERSITY OF CALIFORNIA

Member, IEEE Multimedia Communications Technical Committee, 2009-present

Member, IEEE WIE (Women in Engineering), 2006-present

Associate Editor, Elsevier Computer Networks, 2009-2011

Member, IEEE INFOCOM 2010 Technical Program Committee, 2010

Travel Grants Chair, IEEE INFOCOM 2010, 2010

TPC Co-Chair, Packet Video, 2010

SELECTED PUBLICATIONS AND PRESENTATIONS from the past five years

Articles, Journal

Video-Aware Opportunistic Network Coding over Wireless Networks. Seferoglu, H., Markopoulou, A. *IEEE JSAC, Special Issue on Network Coding over Wireless Communication Networks*, 27(5). (2009).

Content-Aware Payout and Packet Scheduling for Video Streaming over Wireless Links. Li, Y., Markopoulou, A., Apostolopoulos, J., Bambos, N. *IEEE Trans. on Multimedia*, 10(5), 885-895. (2008).

Characterization of Failures in an Operational IP Backbone Network. Markopoulou, A., Iannaccone, G., Bhattacharyya, S., Chuah, C. N., Ganjali, Y., Diot, C. *IEEE/ACM Trans. on Networking*, 16(4), 749-762. (2008).

Conference/Workshop/Symposium Proceedings

Multiple Source Multiple Destination Topology Inference using Network Coding. Sattari, P., Markopoulou, A., Fragouli, C. In *Proc. of NetCod 2009*. EPFL, Lausanne. (2009).

Network coding-aware rate control and scheduling in wireless networks. Seferoglu, H., Markopoulou, A., Kozat, U. In *Proc. of ICME 2009, Special Session on "Network Coding for Multimedia Streaming"*. New York. (2009).

Distributed Rate Control for Video Streaming over Wireless Networks with Intersession Network Coding. Seferoglu, H., Markopoulou, A. In *Proc. of Packet Video 2009*. Seattle. (2009).

Reports, Technical

A Walk in Facebook: Uniform Sampling of Users in Online Social Networks. Gjoka, M., Kurant, M., Butts, C. T., Markopoulou, A. (Technical Report arXiv:cs.NI/0906.0060). arXiv.org. (2009).

Optimal Filtering of Malicious IP Sources. Soldo, F., Markopoulou, A., Argyraki, K. (Technical Report arXiv:cs.NI/0811.3828). arXiv.org. (2008).

PRESENTATIONS

Highly Predictive Blacklisting, SuRI (Summer Research Institute), EPFL, Lausanne, June 2009.

Network Coding Meets Multimedia: Opportunities and Challenges, IEEE MMTC E-Letter, February 2009.

PROFESSIONAL DEVELOPMENT ACTIVITIES - none

NAME - Gopi Meenakshisundaram

EDUCATION

Ph.D, Computer Science, University of North Carolina at Chapel Hill, 2001

M.S., Computer Science, Indian Institute of Science , 1995

B.E., Computer Science and Engineering, Thiagarajar College of Engineering, 1992

ACADEMIC EXPERIENCE

UC Irvine, Associate Professor, 2007-present, Full-time

UC Irvine, Assistant Professor, 2001-2007, Full-time

NON-ACADEMIC EXPERIENCE

AT&T Research Lab, Florham Park, NJ 1998 (Summer), 1999 (Summer)

Senior Software Engineer, Tata Elxsi, Bangalore, 1995

CERTIFICATIONS AND PROFESSIONAL REGISTRATIONS - none

CURRENT MEMBERSHIPS IN PROFESSIONAL ORGANIZATIONS -

ACM, Eurographics, IEEE

HONORS AND AWARDS -

Second Best Paper Award, Eurographics, 2005.

Second Best Paper Award, Eurographics, 2004.

Excellence in Teaching, Division of Undergraduate Education, UCI (2004).

Link Foundation Fellowship (1999-2000).

Gold Medalist, CS&E Faculty, Thiagarajar College of Engineering. (1988-1992).

SERVICE ACTIVITIES within UNIVERSITY OF CALIFORNIA

UCI-Representative to (system-wide) University Committee on Faculty Welfare 2010-11

Senate Council on Faculty Welfare, Diversity, and Academic Freedom, UCI, 2010-2013

Senate Sub-committee on Undecided/Undeclared Students, UCI, 2008-11.

Faculty Chair, Donald Bren School of Information and Computer Sciences, 2008-09.

Entrepreneurship and Leadership Committee, DBSICS, 2007-08.

Network Policy Committee, 2005-2006.

SERVICE ACTIVITIES outside UNIVERSITY OF CALIFORNIA

Associate Editor, Journal of Graphical Models, 2010-present

Area Chair, Indian Conference on Computer Vision, Graphics and Image Processing, 2010.

Conference Co-chair, ACM Interactive 3D Graphics and Games, 2012.

Industry Co-Chair, ACM Interactive 3D Graphics and Games, 2010.
Student Stipend Chair, ACM Interactive 3D Graphics and Games, 2009.
Program Co-chair, International Symposium on Visual Computing, 2006.
Program Chair, High Performance Computing Symposium, 2004
Technical Papers Co-chair, Interactive 3D Graphics and Games, 2013.
Program Committee, ACM Interactive 3D Graphics and Games, 2009-2013.
Program Committee, Pacific Graphics, 2005, 2007.
Program Committee, SIGGRAPH/Eurographics Sym. on Point Based Graphics, 2007.
Program Committee, International Symposium on Visual Computing, 2005-2010
Program Committee, ACM Sym. on Solid and Physical Modeling, 2007-2010
Program Committee, Eurographics Workshop on Sketch-Based Interfaces and Modeling, 2005, 2006, 2008, 2011.

SELECTED PUBLICATIONS AND PRESENTATIONS from the past five years:

Behzad Sajadi, Shan Jiang, Jae-Pil Heo, Sung-Eui Yoon, M. Gopi, Data Management for SSDs for Large-Scale Interactive Graphics Applications, ACM Sym. on Interactive 3D Graphics and Games (I3D), 2011.
Jingliang Peng, Yan Huang, C.-C. Jay Kuo, Ilya Eckstein, M. Gopi Feature Oriented Progressive Lossless Mesh Coding Computer Graphics Forum, 2010
Koel Das, Monica Siegenthaler, Aditi Majumder, Hans Keirstead, M. Gopi Automated Analysis of Remyelination Therapy for Spinal Cord Injury ICVGIP 2010.
Behzad Sajadi, Maxim Lazarov, M. Gopi, Aditi Majumder Color Seamlessness in Multi-Projector Displays using Constrained Gamut Morphing IEEE Transactions on Visualization and Computer Graphics, 15(9), pp 1317-1326, 2009.
Pablo Diaz-Gutierrez, David Eppstein, M. Gopi Curvature Aware Fundamental Cycles Computer Graphics Forum, 28(7), pp 2015-2024, 2009.
Pablo Diaz-Gutierrez, Jonas Bosch, Renato Pajarola, M. Gopi Streaming Surface Sampling Using Gaussian e-nets. The Visual Computer, 25(5-7), pp 411-422, 2009.
Yongwei Miao, Pablo Diaz-Gutierrez, Renato Pajarola, M. Gopi, Jieqing Feng. Shape Isophotic Error Metric Controllable Re-Sampling for Point-sampled Surfaces IEEE Intl. Conf. on Shape Modeling and Applications (SMI), June, 2009. pp.28-35. [26%]
Behzad Sajadi, Yan Huang, Pablo Diaz-Gutierrez, Sung-Eui Yoon, M. Gopi A Novel Page-Based Data Structure for Interactive Walkthroughs ACM Symposium on Interactive 3D Graphics and Games, Feb 2009.
Yan Huang, Jingliang Peng, C.-C Jay Kuo, M. Gopi A Generic Scheme for Progressive Point Cloud Coding IEEE Trans. on Visualization and Computer Graphics, pp 440-453, 14(2), Mar/Apr 2008.

PROFESSIONAL DEVELOPMENT ACTIVITIES-None

NAME - Sharad Mehrotra

EDUCATION

Ph.D, Computer Science, University of Texas at Austin, 1993

M.S., Computer Science, University of Texas at Austin, 1990

B.Tech, Computer Science & Engineering, IIT, Kanpur, 1988

ACADEMIC EXPERIENCE

UC Irvine, Professor, 2004-present, Full-time

UC Irvine, Associate Professor, 2000-2004, Full-time

UC, Irvine, Assistant Professor, 1998-2000 , Full-time

Univ. of Illinois at Urbana Champaign, 1994-1998

NON-ACADEMIC EXPERIENCE

Matsushita Information Technology Laboratory, Princeton, NJ, 1993-1994

CERTIFICATIONS AND PROFESSIONAL REGISTRATIONS - none

CURRENT MEMBERSHIPS IN PROFESSIONAL ORGANIZATIONS - ACM

HONORS AND AWARDS -

- **MCD Fellowship**, University of Texas at Austin, 1988-1990.
- S. Mehrotra, H. F. Korth, and A. Silberschatz. "*Concurrency Control in Hierarchical Multidatabase Systems*". **Selected by Program Committee of the VLDB International Conference, 1994 as one of the best papers submitted to the conference.** Invited to submit to the *VLDB Journal*.
- **US Patent** on "*Method for Proximity Searching with Range Testing and Range Adjustment*" with W. Aref, D. Barbarà, and S. Johnson. Patent Allowed June 1995.
- **Best Paper Award Nomination**, J. Kothari, and S. Mehrotra *Neighborhoods: A framework for enabling web-based synchronous collaboration and hierarchical Navigation*. Proceedings of the 29th Hawaiian International Conference in System Sciences 1996.
- **CAREER Award**, NSF Information and Data Management Program, Information and Intelligent Systems Division, 1998.
- **C. W. Gear Outstanding Junior Faculty Award** based on *Research Contributions*, Department of Computer Science, University of Illinois at Urbana-Champaign, 1998.
- **Best Paper Award** for the paper entitled *Locally Adaptive Dimensionality Reduction for Indexing Large Time Series Databases*, **SIGMOD Conference, 2001**. Paper selected from 290 submissions of which 44 were selected for publication.
- **Best Paper Award** for the paper entitled *Efficient Execution of Aggregation Queries over Encrypted Relational Databases*, DASFAA 2004.
- **Outstanding Graduate Student Mentor Award**, UC Irvine, in 2005
- **Best Student Paper Award**, IEEE Workshop on Multimodal Sentient Computing: Sensors, Algorithms and Systems (WMSC 2007) held in conjunction with IEEE CVPR (Computer Vision and Pattern Recognition) 2007.

SERVICE ACTIVITIES within UNIVERSITY OF CALIFORNIA (partial list)

Director for Center of Emergency Response Technologies, 2009-present

Member, CS Task force on Undergraduate Education, 2011

Member, Division Council Calit2, 2007-present

Computing and Network policy Committee

Faculty Chair for School of ICS

Admissions Committee

SERVICE ACTIVITIES outside UNIVERSITY OF CALIFORNIA (partial list)

Program committee member, VLDB 2012; Workshop Chair, ICDE 2012; Program Committee

member, ISI 2012; Publicity Chair, ISI 2012; Program Co-Chair, SESA 2011; Program

Committee member, SIGMOD 2011; Program Committee member, ICDE 2011; Publicity Chair,

ISI 2011; Program Co-Chair, EMWS, 2010

SELECTED PUBLICATIONS AND PRESENTATIONS from the past five years:

1. SEMARTCam scheduler: semantics driven real-time data collection from indoor camera networks to maximize event detection. Ronen Vaisenberg, Sharad Mehrotra and Deva Ramanan, *Journal of Real-Time Image Processing*, Vol. 5, Issue 1 2010.
2. A Semantics-Based Approach for Speech Annotation of Images, D. Kalashnikov, S. Mehrotra, J. Xu, N. Venkatasubramanian. *TKDE*, 2010.
3. Building Disclosure Risk Aware Query Optimizers for Relational Databases, Mustafa Canim, Murat Kantarcioglu, Bijit Hore, Sharad Mehrotra, VLDB 2010:
4. CCD: Efficient Customized Dissemination in Distributed Publish/Subscribe. Hojjat Jafarpour, Bijit Hore, Sharad Mehrotra, Nalini Venkatasubramanian, *Middleware* 2009
5. Exploiting Context Analysis for Combining Multiple Entity Resolution Systems. Stella Chen, Dmitri Kalashnikov, and Sharad Mehrotra, *SIGMOD* 2009
6. Privacy-Preserving Event Detection in Pervasive Spaces. Bijit Hore, Jehan Wickramasuriya (Motorola, Inc.), Sharad Mehrotra, Nalini Venkatasubramanian, and Daniel Massaguer, *PERCOM* 2009.
7. Dmitri V. Kalashnikov, Zhaoqi Chen, Rabia Nuray-Turan, and Sharad Mehrotra. Web people search via connection analysis. In *TKDE* 2009
8. Yiming Ma, Dmitri V. Kalashnikov, and Sharad Mehrotra. Towards Managing Uncertain Spatial Information for Situational Awareness Applications, *TKDE* 2008.
9. Dmitri V. Kalashnikov, Rabia Nuray-Turan, and Sharad Mehrotra. Towards breaking the quality curse. A web-querying approach to Web People Search. In *Annual International ACM SIGIR Conference*, July 20-24, 2008.
10. Lazaridis, S. Mehrotra, Optimization of Multi-version Expensive Predicates, *ACM SIGMOD* 2007.

PROFESSIONAL DEVELOPMENT ACTIVITIES

none

NAME – Eric Mjolsness

EDUCATION

Ph.D., Physics and Computer Science. September 1985. California Institute of Technology.

A.B., Physics and Mathematics. May 1980. Washington University in St. Louis.

ACADEMIC EXPERIENCE

- Professor, Dept. of Computer Science, Donald Bren School of Information and Computer Sciences, University of California, Irvine. July 2009-present.
- Professor/Assoc Prof. (add'l appt.), Department of Mathematics, UCI, 2005 – present.
- Associate Professor, Depart. of Computer Science, UCI. July 2002-June 2009.
- Research Scientist, Department of Comp. Sci. and Eng., UC San Diego. 1995 to 1998.
- Associate Professor. 1990 to 1994. Dept. of Computer Science, Yale University.
- Assistant Professor. 1985 to 1990. Dept. of Computer Science, Yale University.
- Visiting Associate in Biology, Caltech. 2002 – 2010. 2010-present.
- Faculty member of the Institute for Neural Computation, UCSD, 1994 to 1998.
- Faculty member of the Yale Program in Neuroscience, July 1990 to December 1994.

NON-ACADEMIC EXPERIENCE

- Group Supervisor, Principal, Jet Propulsion Laboratory, Caltech. 2000 - 2002.
- Computer Scientist - Principal, Jet Propulsion Laboratory, Caltech. 1998 – 2000.
- Computer Scientist - Senior, Jet Propulsion Laboratory, Caltech. 1997 - 1998.
- Collaborator, Los Alamos National Laboratory. 1983 - 1993.
- Consultant to the Federal Bureau of Investigation, autom. fingerprint identification, 1991-1992.

CERTIFICATIONS AND PROFESSIONAL REGISTRATIONS - none

CURRENT MEMBERSHIPS IN PROFESSIONAL ORGANIZATIONS - Association for Computing Machinery, American Mathematical Society, American Association for the Advancement of Science

HONORS - Moore Distinguished Scholar, California Institute of Technology, 2010-2011; Senior Member of Sigma Xi, May 1999; NASA Summer Faculty Fellowship in Aeronautics and Space Research, Jet Propulsion Laboratory, 1996; Senior Faculty Fellowship, Yale University, 1991-92; Phi Beta Kappa, 1980; Arthur Holly Compton Fellowship, Washington University in St. Louis, 1976-1980.

SERVICE ACTIVITIES within UNIVERSITY OF CALIFORNIA

- Director, Center for Computational Morphodynamics, Bren School of Information and Computer Sciences, July 2009-present.
- Member, UC Irvine Committee on Committees, 2008-2010
- University of California, Irvine representative for the executive committee of the UC Information Technology for Life Sciences program, May 2005- December 2008.
- Project leader, Systems Biology, Inst. for Genomics and Bioinformatics, UCI, 2003 – present.

SERVICE ACTIVITIES outside UNIVERSITY OF CALIFORNIA

- Member, International Arabidopsis Informatics Consortium, 2010-present.
- Symposium Co-organizer, “Mathematics and Biomechanics of Plant Development”, International Botanical Congress, Melbourne, July 2011.
- Member, Gatsby Cambridge Computational Advisory Group, Sainsbury Laboratory, Cambridge UK, 2010-present.
- Co-organizer, “Morphodynamics of Plants, Animals and Beyond”, Kavli Institute for Theoretical Physics, August-September 2009.
- Action Editor, Neural Computation, January 1995 to present.
- Review panel member, Caltech/NASA Jet Propulsion Laboratory: Mission (Information Technology / Computing and Autonomy Systems) Research Review, 2005-2009.
- Intern'l Advisory Board, Ctr. for Plant Integrative Biology, U. Nottingham. 2007-present.
- Reviewer for Science, Bioinformatics, IET Systems Biology, BMC Systems Biology, J. Bioinformatics and Computational Biology, Neural Computation, IEEE Transactions on Neural Networks, J. Association for Computing Machinery, Biological Cybernetics, NSERC, ECCB, ICSB, BGRS, GECCO, SIGGRAPH, Cambridge University Press.

SELECTED PUBLICATIONS AND PRESENTATIONS from the past five years:

- “Towards Measurable Types for Dynamical Process Modeling Languages”, Eric Mjolsness. Electronic Notes in Theoretical Computer Science (ENTCS), vol. 265, pp. 123-144, 6 Sept. 2010, Elsevier.
- “Parameter inference for discretely observed stochastic kinetic models using stochastic gradient descent”, Yuanfeng Wang, Scott Christley, Eric Mjolsness, and Xiaohui Xie. BMC Systems Biology 4:99, 2010.
- “A plausible mechanism for auxin patterning along the developing root”, Victoria V Mironova, Nadya A Omelyanchuk, Guy Yosiphon, Stanislav I Fadeev, Nikolai A Kolchanov, Eric Mjolsness and Vitaly A Likhoshvai. BMC Systems Biology 4:98, 2010.
- “A ‘Random Steady State’ Model for the Pyruvate Dehydrogenase and Alpha-Ketoglutarate Dehydrogenase Enzyme Complexes”, T. S. Najdi, G. W. Hatfield, and E. D. Mjolsness. Physical Biology, 7 (2010) 016016, 2010.
- “An Exact Accelerated Stochastic Simulation Algorithm”, E. Mjolsness, D. Orendorff, P. Chatelain, P. Koumoutsakos, Journal of Chemical Physics 130 144110, 2009.
- “Towards a Calculus of Biomolecular Complexes at Equilibrium”, Eric Mjolsness. Briefings in Bioinformatics, 8(4):226-33 July 2007.

PROFESSIONAL DEVELOPMENT ACTIVITIES - none

NAME – Alexandru Nicolau

EDUCATION

Brandeis University Computer Science, Physics B.A. 1980
Yale University Computer Science, M.S., M.Ph. 1982, 1983
Yale University Computer Science, Ph.D. 1984

ACADEMIC EXPERIENCE

1992 – present Professor CS Dept., University of California, Irvine
1988 - 1992 Associate Professor ICS Dept., University of California, Irvine
1984 - 1988 Assistant Professor CS Dept., Cornell University

NON-ACADEMIC EXPERIENCE - None

CERTIFICATIONS AND PROFESSIONAL REGISTRATIONS – none

CURRENT MEMBERSHIPS IN PROFESSIONAL ORGANIZATIONS – none

HONORS AND AWARDS

Best Paper award: ACM CASES 2008
Best Paper award: INNS/IEEE Intn'l Joint Conference on Neural Networks, 2009.
Selection as one of *The Most Influential Papers of 10 Years DATE*, 2008 (30 papers selected as most influential by a committee of all past Program Chairs, out of ~1200 papers published conferences, and ~6,000 submissions).

SERVICE ACTIVITIES within UNIVERSITY OF CALIFORNIA

Senate Assembly Representative (2007-2008).
Council on Academic Personnel (CAP) (2009-2010).
Executive Committee (2007-2008)
Faculty Chair (2007-2008)
Computer Science and Engineering (CSE) Steering Committee (Joint ICS/SOE) (2007-2010)
Co-Director of the International M.S. in Embedded Systems Program in DBICS(2007-2009).

SERVICE ACTIVITIES outside UNIVERSITY OF CALIFORNIA

Editor-in-Chief, *International Journal of Parallel Programming* (1992 – present).
Editorial Board Member, MIT Press, series on Parallel/Distributed Computing (1990 – 1999).
Program Committee Member IEEE/ACM CASES 2007, 2010.
Steering Committee Member LCPC 2004-2010.
Program Committee Chair ISHPC (Japan) 2008.
Program Committee Member SBAC-PAD (Brasil) 2007.
Program Committee Member ISPDC 2006, 2007, 2010
Program Committee Member ASAP 2005, 2006, 2007, 2009, 2010.

SELECTED PUBLICATIONS AND PRESENTATIONS from the past five years:

1. "Lightweight lock-free synchronization methods for multithreading", (w/ A. Kejariwal, H. Saito, X.Tian, M. Girkar, W. Li, U. Banerjee, C. Polychronopoulos: *Proceedings of ACM International Conference on Supercomputing*, pp. 361-371, 2006.
2. "Techniques for Efficient Placement of Synchronization Primitives" (w/ G. Li, A. Kejariwal) *Proceedings of ACM SIGPLAN Symposium on Principles and Practice of Parallel Programming*, pp.199-208, 2009.
3. "On the exploitation of loop-level parallelism in embedded applications", (w/ A.Kejariwal, A. Veidenbaum, M. Girkar, X. Tian, H. Saito), *ACM Trans. Embedded Comput. Syst.* 8(2), 2009.
4. "Cache-aware iteration space partitioning", (w/ A. Kejariwal, U. Banerjee, A. Veidenbaum, C. Polychronopoulos. *Proceedings of ACM SIGPLAN Symposium on Principles and Practice of Parallel Programming*, 2008.
5. "Tight analysis of the performance potential of thread speculation using spec CPU 2006", (w/ A. Kejariwal, X.Tian, M.Girkar, W.Li, S. Kozhukhov, U. Banerjee, A. Veidenbaum, C. Polychronopoulos). *Proceedings of ACM SIGPLAN Symposium on Principles and Practice of Parallel Programming*, pp.215-225, 2007.
6. "A novel approach for partitioning iteration spaces with variable densities", (w/ A. Kejariwal, U. Banerjee, C. Polychronopoulos), *Proceedings of ACM SIGPLAN Symposium on Principles and Practice of Parallel Programming*, pp.120-131, 2005.
7. "History-aware Self-Scheduling" (w/ A. Kejariwal, C. Polychronopoulos) *Proceedings of International Conference on Parallel Processing*, pp.185-192, 2006.
8. "Adaptive Winograd's matrix multiplications" (w/ P. D'Alberto), *ACM Transactions on. Math. Software.* 36(1), 2009.
9. "A predictive decode filter cache for reducing power consumption in embedded processors", (w/ W. Tang, A. Veidenbaum, A. Kejariwal) *ACM Trans. Design Autom. Electr. Syst.* 12(2), 2007.

PROFESSIONAL DEVELOPMENT ACTIVITIES - none

NAME – Richard E. Pattis

EDUCATION

M.S., Computer Science, Department of Computer Science, Stanford University, 1985
B.S., Mathematics, Department of Mathematics, Carnegie Mellon University, 1975

ACADEMIC EXPERIENCE

UC Irvine, Senior Lecturer/SOE, 2007-present
Carnegie Mellon University, Associate Teaching Professor, 1997-2007
University of Washington, Lecturer, 1985-1995

NON-ACADEMIC EXPERIENCE

Turing Tar Pit Software, Principal, 1981-1984

CERTIFICATIONS AND PROFESSIONAL REGISTRATIONS - none

CURRENT MEMBERSHIPS IN PROFESSIONAL ORGANIZATIONS

Association for Computing Machinery
Institute of Electrical and Electronics Engineers

HONORS AND AWARDS

ACM Distinguished Lecturer, 2011
SIGCSE/ACM Award for Outstanding Contributions to Computer Science Education, 2006

SERVICE ACTIVITIES within UNIVERSITY OF CALIFORNIA

Vice-Chair for Undergraduate Affairs/CS, 2009-2012
Undergraduate Policy Committee, 2010-2011 (member), 2011-2012 (chair)
Lecturer Review Board, 2010-2012
UCI Subcommittee on Courses, 2009-2011 (member)
UCI Council on Undergraduate Admissions and Relations with Schools, 2009-2010 (member)
UCI Council on Student Experience, 2010-2011 (member), 2011-2012 (chair)

SERVICE ACTIVITIES outside UNIVERSITY OF CALIFORNIA - none

SELECTED PUBLICATIONS AND PRESENTATIONS from the past five years - none

PROFESSIONAL DEVELOPMENT ACTIVITIES - none

NAME - Deva Ramanan

EDUCATION

Ph.D, Computer Science, UC Berkeley, 2005

B.E., Electrical Engineering, University of Delaware, 2000

ACADEMIC EXPERIENCE

UC Irvine, Associate Professor, 2012-present, Full-time

UC Irvine, Assistant Professor, 2007-2012, Full-time

Toyota Technological Institute at Chicago, 2005-2007, Full-time

NON-ACADEMIC EXPERIENCE

Google, consultant, development of visual search systems, 2012

Microsoft Research, visiting consultant, development of visual recognition systems, 2008

CERTIFICATIONS AND PROFESSIONAL REGISTRATIONS - none

CURRENT MEMBERSHIPS IN PROFESSIONAL ORGANIZATIONS

IEEE Member

HONORS AND AWARDS

Popular Science's Brilliant 10 Researchers, 2012

Elsevier's Outstanding Young Researcher in Image and Vision Computing, 2012

National Science Foundation Early Career Award. (2010 - 2015).

Google Research Award. (2010).

PASCAL Visual Object Detection Challenge Lifetime Achievement Award. (2010).

David Marr Prize, International Conference on Computer Vision (ICCV). (2009).

Microsoft Research Award. (2008).

Winner of PASCAL Visual Object Detection Challenge. (2008).

SERVICE ACTIVITIES within UNIVERSITY OF CALIFORNIA

Member, ICS Committee on Graduate Admissions, 2008, 2011

SERVICE ACTIVITIES outside UNIVERSITY OF CALIFORNIA

International Journal on Computer Vision (IJCV), Editorial Board. (2010 - Present).

IEEE Transactions on Pattern Analysis and Machine Intelligence (PAMI), Associate Editor. (2012 - Present).

IEEE Computer Vision and Pattern Recognition (CVPR), Area Chair / Senior Program Committee. (2011,2013).

European Conference on Computer Vision (ECCV), Area Chair / Senior Program Committee. (2012).

International Conference on Computer Vision (ICCV), Area Chair / Senior Program Committee. (2013).

SELECTED PUBLICATIONS AND PRESENTATIONS from the past five years:

M. Hejrati, D. Ramanan. (2012). "Analyzing 3D Objects in Cluttered Images" Neural Info. Proc. Systems (NIPS).

H. Pirsiavash, D. Ramanan. (2012). "Recognizing Activities of Daily Living in First-Person Camera Views" Computer Vision and Pattern Recognition (CVPR).

X. Zhu, D. Ramanan. (2012). "Face Detection, Pose Estimation, and Landmark Localization in the Wild" Computer Vision and Pattern Recognition (CVPR).

C. Vondrick, D. Patterson, D. Ramanan. (2012). "Efficiently Scaling Up Crowdsourced Video Annotation" International Journal of Computer Vision (IJCV).

Y. Yang, S. Hallman, D. Ramanan, C. Fowlkes. (2011). "Layered Object Models for Image Segmentation" IEEE Pattern Analysis and Machine Intelligence (PAMI).

C. Desai, D. Ramanan, C. Fowlkes. (2011). "Discriminative Models for Multi-Class Object Layout" International Journal of Computer Vision (IJCV).

Y. Yang, D. Ramanan. (2011). "Articulated Pose Estimation using Flexible Mixtures of Parts" Computer Vision and Pattern Recognition (CVPR).

Ramanan, D. K., Baker, S. (2010). "Local Distance Functions: A Taxonomy, New Algorithms, and an Evaluation." IEEE Pattern Analysis and Machine Intelligence (PAMI).

Allin, S., Baker, N., Eckel, E., Ramanan, D. K. (2010). "Robust Tracking of the Upper Limb for Functional Stroke Assessment." IEEE Neural Systems and Rehabilitation Engineering (NSRE).

Ramanan, D. K., Baker, S. (2010). "Local Distance Functions: A Taxonomy, New Algorithms, and an Evaluation." IEEE Pattern Analysis and Machine Intelligence (PAMI).

Felzenszwalb, P., Girshick, R., McAllester, D., Ramanan, D. K. (2009). "Object Detection with Discriminatively Trained Part-Based Models." IEEE Pattern Analysis and Machine Intelligence (PAMI).

NAME - Amelia C. Regan

EDUCATION

Ph.D, Civil (Transportation Systems) Engineering University of Texas, Austin 1997
M.S.E., Civil Engineering, University of Texas, Austin, 1995
M.S. Applied Mathematics, Johns Hopkins University, 1990
B.A.S. Systems Engineering, University of Pennsylvania, 1987

ACADEMIC EXPERIENCE

UC Irvine, Professor, 2009 -present, Full-time
UC Irvine, Associate Professor, 2002-2009, Full-time
UC Irvine, Assistant Professor, 1997-2002, Full-time
Athens University of Business and Economics, Visiting Professor, Summers 2002-2006
National Technical University of Denmark, Visiting Professor, Summer 2003

NON-ACADEMIC EXPERIENCE

Operations Research Analyst, Software Engineer United Parcel Service 1988-1991
Research Analyst, Association of American Railroads, 1987-1988

CERTIFICATIONS AND PROFESSIONAL REGISTRATIONS - none

CURRENT MEMBERSHIPS IN PROFESSIONAL ORGANIZATIONS

Transportation Research Board, INFORMS, IEEE

HONORS AND AWARDS

NSF Career Award, UCI Faculty Senate Mid- Career Award for Service

SERVICE ACTIVITIES within UNIVERSITY OF CALIFORNIA

UCI Committee on Academic Personnel, 2010-present
UCI Council on Student Experience, Co-Chair 2003-2004
UCI Committee on Teaching, Chair 2001-2003, Member 1999-2003
ICS Associate Dean for Undergraduate Education, 2006-2009
UCI Division of Undergraduate Education, Acting Associate Dean Summer, Fall 2005

SERVICE ACTIVITIES outside UNIVERSITY OF CALIFORNIA

Editorial Advisory Board: Transportation Research, Part B, Methodological, 1997-2003
Transportation Research Record (Freight Planning and Logistics Committee, Network Analysis Committee), 1999-2009

Regular Paper Reviewer: Transportation Research A, B, C, E, Transportation Research Record, Operations Research, Transportation Science, European Journal of Operational Research, Networks and Spatial Economics, Computational Optimization and Applications, Computers and Operations Research, Computers and Industrial Engineering, Journal of the Operations Research Society

SELECTED PUBLICATIONS AND PRESENTATIONS from the past five years:

- Yang, C.H. and A.C.Regan (2012), Multi-criteria Decision Support Methodology for Implementing Truck Operation Strategies, *Transportation*, in press.
- Chow, J.Y.J., A.C. Regan, F. Ranaiefar and D. Arkhipov (2011), A Network Option Portfolio Management Framework for Adaptive Transportation Planning, *Transportation Research, Part A: Policy and Practice*, 45(8) 765-778.
- Chow, J.Y-J., and A.C. Regan (2011), Resource Location and Relocation Models with Forecasting for Wildland Fire Planning, *INFOR*, 39(1-2), 31-43.
- Tsai, M-T, J.D. Saphores and A.C. Regan (2011), Valuation of Freight Transportation Contracts under Uncertainty, *Transportation Research, Part E: Logistics and Transportation Review*, 49 (6), 920-932.
- Chow, J.Y-J., and A.C. Regan (2011), Real Option Pricing of Network Design Investments, *Transportation Science*, 45(1).
- Chow, J. Y-J., and A.C. Regan (2011), Network-Based Real Option Models, *Transportation Research, Part B: Methodological*, 45(4).
- Chow, J.Y-J, C.H. Yang and A.C. Regan (2010), State-of-the Art of Freight Forecasting Modeling: Lessons Learned and the Road Ahead, *Transportation*, 37 (6).
- Apivatanagul, P and A. C. Regan (2010), Long Haul Freight Network Design Using Shipper-Carrier Freight Flow Prediction: A California Network Improvement Case Study, *Transportation Research Part E: Logistics and Transportation Review*, 46.
- Chen, R. and Jin, W. and Regan, A.C. (2010), Broadcasting Safety Information in Vehicular Networks: Issues and Approaches, *IEEE Network*, Special Issue on Advances in Vehicular Communications Networks.
- Tsai, M-T, A.C. Regan and J-D, Saphores (2009), Freight Transportation Derivatives Contracts: State of the Art and Future Developments, *Transportation Journal* 48(4).
- Wang, X. and A.C. Regan (2009), On the Convergence of a New Time Window Discretization Method for the Traveling Salesman Problem with Time Window Constraints, *Computers and Industrial Engineering*, 56. 161-164.
- Wang, J-F and A.C. Regan (2008), Real-time Trailer Scheduling for Crossdock Operations, *Transportation Journal* 47(2), pp 5-20.
- Lu, X. J. Song and A. C. Regan (2007), Rebates, Returns, and Price Protection Policies in Supply Chain Coordination, *IIE Transactions*, 39 (1).

PROFESSIONAL DEVELOPMENT ACTIVITIES –

Division of Undergraduate Education/UCI Extension weeklong workshop on the development of on-line curriculum, Summer, 2012.

NAME - Isaac D. Scherson

EDUCATION

Ph.D. Dept. of Applied Mathematics (Computer Science), Weizmann Institute of Science, Rehovot, Israel, 1983.

M.S.E.E. Division of Graduate Studies, Faculty of Engineering. National University of Mexico (UNAM), 1976.

B.S.E.E. Electrical and Mechanical Engineering. Faculty of Engineering. National University of Mexico (UNAM), 1975, Highest Honors.

ACADEMIC EXPERIENCE

Study Center Director, University of California Education Abroad Program – Santiago, Chile. 2009-2011.

Professor, University of California, Irvine. 1994-current

Associate Professor, University of California, Irvine. 1990-1994.

Assistant Professor, Princeton University, 1987-1990.

Assistant Professor, University of California, Santa Barbara. 1983-1987.

NON-ACADEMIC EXPERIENCE

Consultant on Project Management, Research and Development, SBIR grant proposal preparation and technical product definition/design (for DoD subcontractor).

Consultant: High Technology Firms.

Expert Consultant: Intellectual Property Litigation.

Conseiller Scientifique, France Télécom R&D, Issy les Moulineaux, Paris, France.

CERTIFICATIONS AND PROFESSIONAL REGISTRATIONS - none

CURRENT MEMBERSHIPS IN PROFESSIONAL ORGANIZATIONS

IEEE Senior Member, ACM

HONORS AND AWARDS

Elected to the Eta Kappa Nu Electrical Engineering Honor Society

Senior Member of the IEEE Computer Society.

Member of the ACM SIGARCH and SIGGRAPH.

Winner of the Outstanding Paper Award at the International Conference on Parallel Processing, August 1990.

Member of the IEEE Computer Society Technical Committee on Computer Architecture.

Member of the IEEE Computer Society Technical Committee on Parallel Processing.

SERVICE ACTIVITIES within UNIVERSITY OF CALIFORNIA

Committee on Academic Personnel (3 years) and Academic Personnel Ad-hoc Committees.

Committee on Privilege and Tenure (4 years, Chaired committee for 2 of the 4 years).
Chair of Privilege and Tenure Hearing Committee (Probable Cause).
Associate Chair for Academic Personnel (1 year, Administrative Appointment).
Committee on Research (2 years).
Faculty Chair (Three 1-year terms).
Committee on Faculty Welfare (3 years).
Chair, CFW's Subcommittee on Academic Freedom (1 year)
Committee on Equity Review (Summer 1997)
Dept. Committee on Undergraduate Education (Two 1-year terms)
Dept. Executive Committee (Three 1-year terms)
Undergraduate Probation Faculty Adviser (1 year)
Dept. Graduate Admissions Committee (Four 1 year terms)

SERVICE ACTIVITIES outside UNIVERSITY OF CALIFORNIA

Associate Editor – IEEE Computer Architecture Letters
Associate Editor – Journal of Interconnection Networks
Chair.co-Chair, Member of Program Committee in several professional conferences
Invited <Distinguished> Seminar Speaker in numerous venues around the world.
Visiting Scientist/Professor at the University of Paris VI (Pierre et Marie Curie, 1997-2004).
Visiting Scientist/Professor at the University of Lille 1 (Lille, France, 2003).
Visiting Scientist with the INRIA (Rennes, France, 2004).

SELECTED PUBLICATIONS AND PRESENTATIONS from the past five years:

“Sync/Async Parallel Search for the Efficient Design and Construction of Web Search Engines“,
Parallel Computing, Elsevier, (with Mauricio Marin, Carolina Bonacic and Carlos Gómez-
Pantoja), 2010.
“Cost-Performance Analysis of Service-Address-Routed Least-Common-Anccestor Networks“,
Journal of Interconnection Networks,” World Scientific Publishing Company, Vol. 9, Issue 1/2
(March – June 2008), pp. 157-176, (with Daniel Valencia).
“Idle regulation in non-clairvoyant scheduling of parallel jobs“, Discrete Applied Mathematics,
Elsevier, (with Andrei Tchernykh, Denis Trystram, and Carlos Brizuela), Winter 2008.
“Federated GRID Clusters using Service Address Routed Optical Networks“, Future Generation
Computer Systems" (FGCS): International Journal of Grid Computing: Theory, Methods and
Applications”, Elsevier, (with Daniel Valencia, Enrique Cauich, John U. Duselis, and Richert K.
Wang.), Vol 23 (2007), pp. 957-967.

PROFESSIONAL DEVELOPMENT ACTIVITIES - none

NAME - Chen Y. Sheu

EDUCATION

Ph.D., University of California, Berkeley, 1986
MSCS, University of California, Berkeley, 1982
BSEE, National Taiwan University, 1978

ACADEMIC EXPERIENCE

UC Irvine, Professor, 1997-present
UC Irvine, Associate Professor, 1993-1997
Rutgers University, Associate Professor, ECE, 1989-1993
Purdue University, Assistant Professor, ECE, 1986-1988

NON-ACADEMIC EXPERIENCE - none

CERTIFICATIONS AND PROFESSIONAL REGISTRATIONS - none

CURRENT MEMBERSHIPS IN PROFESSIONAL ORGANIZATIONS - none

HONORS AND AWARDS

IEEE Fellow, 2003
Henry Rutgers Fellowship, Rutgers University, 1989-1991
Outstanding Paper Award, IEEE Computer Society, 1987

SERVICE ACTIVITIES within UNIVERSITY OF CALIFORNIA

EECS Executive Committee 2007-2010

SERVICE ACTIVITIES outside UNIVERSITY OF CALIFORNIA

Founding Editor-in-Chief, International Journal of Semantic Computing, 2006–present
Chair, IEEE Computer Society Technical Committee on Semantic Computing, 2010-present
Chair, IEEE Computer Society Technical Committee on Multimedia Computing, 2004-2010
Editor, Journal of Tools for Artificial Intelligence, 1991-present
Associate Editor, Journal of Software Engineering and Knowledge Engineering, 1990-present
Founding and General Co-Chair, IEEE International Conference on Semantic Computing,
2007-present

SELECTED PUBLICATIONS AND PRESENTATIONS from the past five years

Books

P. C-Y. Sheu, H. Yu, C.V. Ramamoorthy, A. Joshi, L.A. Zadeh (eds.) *Semantic Computing*,
IEEE Press/Wiley, 2010

Articles, Journal

S.Wang, P. C-Y Sheu, “SCDL-NL as A Structured Annotation Language,” *to appear*,
International Journal of Tools with Artificial Intelligence, 2011

P. C-Y Sheu and C.V. Ramamoorthy, "Problems, Solutions, and Semantic Computing," *International Journal of Semantic Computing*, 2010

S. Ikeda, P. C-Y Sheu and J.P.T. Tsai, "Object Relational OLAP," *International Journal of Tools with Artificial Intelligence*, 2010

W. Ying, Y. Li, and P. C-Y Sheu, "A GA-based Approach to Optimizing Combinatorial Queries in SCDL," *International Journal of Semantic Computing*, Vol. 2, No.2, June, 2008, pp. 273-289

S. Wang, R.M. Hu, D. Hecht, R.M. Chen, A. Ng, J. Tsai and P. C-Y Sheu, "Using SCDL for Integrating Tools and Data for Integrating Complex Biomedical Applications," *International Journal of Semantic Computing*, Vol. 2 No. 2, June, 2008, pp. 291-308

Sheu, P. C-Y, Kitazawa, A., Ishi, C., Kaneko, K. and Xie, F., ">From SemanticObjects to Structured Natural Language," *International Journal of Semantic Computing*, Vol.1, No.3, 2007, pp. 359-375.

P. C-Y. Sheu, Editorial Preface, *International Journal of Semantic Computing*, Vol. 1, No. 1, March 2007, pp. 1-9.

Phillip C.-Y. Sheu and Atsushi Kitazawa, "From SemanticObjects to Semantic Software Engineering," *International Journal of Semantic Computing*, Vol.1, No.1, 2007, pp. 11-28.

C. Chubb, Y. Inagaki, P. C-y Sheu, B. Cummings, A. Wasserman, E. Head, and C. Cotman, "BioVision: An Application for the Automated Image Analysis of Histological Sections," *Neurobiology of Aging*, Vol. 27, No. 10, 2006, pp. 1462-1476.

E. Chen, S. Wang, P. C-y Sheu, "A Novel Approach to Table Detection and Analysis for Semantic Annotation," *International Journal on Tools for Artificial Intelligence*, Vol. 15, No.3, 2006, pp. 465-480.

Book Chapters

S. Wang and P. C-y Sheu, "Semantic Languages for Software Engineering," in *Semantic Computing*, P. C-Y. Sheu, H. Yu, C.V. Ramamoorthy, A. Joshi, L.A. Zadeh (eds.), IEEE Press/Wiley, 2010

S. Wang and P. C-y Sheu, "Semantic Web Services," in *Semantic Computing*, P. C-Y. Sheu, H. Yu, C.V. Ramamoorthy, A. Joshi, L.A. Zadeh (eds.), IEEE Press/Wiley, 2010

Q. Wang and P. C-y Sheu, "Process Description Languages," in *Semantic Computing*, P. C-Y. Sheu, H. Yu, C.V. Ramamoorthy, A. Joshi, L.A. Zadeh (eds.), IEEE Press/Wiley, 2010

PROFESSIONAL DEVELOPMENT ACTIVITIES - none

NAME - Keyue M. Smedley

EDUCATION

Ph.D., Electrical Engineering (Power Electronics), California Institute of Technology, 1991

M.S., Electrical Engineering, California Institute of Technology, 1987

M.S., Electrical Engineering (Industrial Electronics), Zhejiang University, 1985

B.S., Electrical Engineering (Industrial Control), Zhejiang University, 1982

ACADEMIC EXPERIENCE

UC Irvine, Professor, 2003-present

UC Irvine, Associate Professor, 1998-2003

UC Irvine, Assistant Professor, 1992-1998

Caltech, TA and RA, 1985-1990

Zhejiang University, Lecturer (Assistant Prof.), 1985

NON-ACADEMIC EXPERIENCE

Superconducting Super Collider, Engineer III, 1990-1992

CERTIFICATIONS AND PROFESSIONAL REGISTRATIONS - none

CURRENT MEMBERSHIPS IN PROFESSIONAL ORGANIZATIONS

IEEE fellow, 2008-Present

Power Sources Manufacturer's Association member, 1997-present

Eta Kappa Nu faculty member, 1994-present

Taotao Jin; Zhang, K.; Kan Zhang; Smedley, K. "A New Interleaved Series Input Parallel Output (ISIPO) Forward Converter With Inherent Demagnetizing Features" *IEEE Transactions on Power Electronics*, Volume 23, Issue 2, March 2008 Page(s):888 – 895.

Yang Chen, Smedley KM. "One-cycle-controlled three-phase grid-connected inverters and their parallel operation." *IEEE Transactions on Industry Applications*, vol.44, no.2, March-April 2008, pp. 663-71.

Jun Wen; Smedley, K.M. "Synthesis of Multilevel Converters Based on Single- and/or Three-Phase Converter Building Blocks" *IEEE Transactions on Power Electronics*, Volume 23, Issue 3, May 2008 Page(s):1247 - 1256 .

Jun Wen; Ma Smedley, K. "Hexagram Inverter for Medium-Voltage Six-Phase Variable-Speed Drives" *IEEE Transactions on Industrial Electronics*, Volume 55, Issue 6, June 2008 Page(s):2473 – 2481.

Jun Wen; Smedley, K. "Hexagram Rectifier—Active Front End of Hexagram Inverter for Medium-Voltage Variable-Speed Drives" *Power Electronics*, *IEEE Transactions on* Volume 23, Issue 6, Nov. 2008 Page(s):3014 – 3024.

Yang Chen; Smedley, K. "Three-Phase Boost-Type Grid-Connected Inverter" *IEEE Transactions on Power Electronics*, Volume 23, Issue 5, Sept. 2008 Page(s):2301 – 2009.

Liang Zhou, Smedley, K.M. "Postfault control strategy for the hexagram inverter motor drive", *IEEE Transactions on Industrial Electronics* Volume: 57 Issue: 8 Pages: 2719-29 Published: August 2010.

Slepchenkov, M; Smedley, K; Wen, J; "Hexagram-Converter-Based STATCOM for Voltage Support in Fixed Speed Wind Turbine Generation Systems" Industrial Electronics, IEEE Transactions on Volume: PP, Issue: 99 Publication Year: 2010.

Wen, J.; Zhou, L.; Smedley, K.; "Minimizing the Circulation Current in Hexagram Medium-Voltage Variable Speed Drive by Coupled Inductors". Industrial Electronics, IEEE Transactions on Volume: PP , Issue: 99 Publication Year: 2010.

HONORS AND AWARDS

Innovation Award for invention of One-Cycle Control, University of California, Irvine, 2005
SBIR Achievement Award for One-Cycle Control, Inc. Department of Army, Pentagon, 2010

SERVICE ACTIVITIES within UNIVERSITY OF CALIFORNIA

Director, Power Electronics Laboratory
Chair, Ph.D. Dissertation Committee

SERVICE ACTIVITIES outside UNIVERSITY OF CALIFORNIA

Manager and Primary Investigator, California Energy Commission Fault Current Program,
2007–present
Member, IEEE Newell Award Committee, 2010-present
Board Member, Chinese Scholar Association, 2010-present

SELECTED PUBLICATIONS AND PRESENTATIONS from the past five years

Articles, Journal

Conference/Workshop/Symposium Proceedings

In Wha Jeong; Slepchenkov, M.; Smedley, K.; Maddaleno, F.; "Regenerative AC Electronic Load with One-Cycle Control", Applied Power Electronics Conference and Exposition (APEC), 2010 Twenty-Fifth Annual IEEE Digital Object Identifier: 10.1109/APEC.2010.5433354 Publication Year: 2010 , Page(s): 1166 – 1171.

Jun Wen; Liang Zhou; Smedley, K.; "Power quality improvement at medium-voltage grids using Hexagram Active Power Filter", Applied Power Electronics Conference and Exposition (APEC), 2010 Twenty-Fifth Annual IEEE Digital Object Identifier: 10.1109/APEC.2010.5433696 Publication Year: 2010 , Page(s): 47 – 57.

Liang Zhou; Smedley, K. A Fault Tolerant Control System for Hexagram Inverter Motor Drive", Conference Information: 2010 Twenty-Fifth Annual IEEE Applied Power Electronics Conference and Exposition - APEC 2010, Date: Palm Springs, CA USA Source: 2010 Twenty-Fifth Annual IEEE Applied Power Electronics Conference and Exposition - APEC 2010 Pages: 264-70 Published: 2010.

PROFESSIONAL DEVELOPMENT ACTIVITIES - none

NAME - Padhraic Smyth

EDUCATION

Ph.D, Electrical Engineering, California Institute of Technology, 1988

M. S., Electrical Engineering, California Institute of Technology, 1985

B.E., Electronic Engineering, University College Galway, 1984

ACADEMIC EXPERIENCE (all full-time)

2008-present Professor, Department of Statistics, UC Irvine (joint appointment)

2006-present Director, Center for Machine Learning and Intelligent Systems, UC Irvine

2003-present Professor, Department of Computer Science, UC Irvine

1998-2003 Associate Professor, Department of Computer Science, UC Irvine

1996-1998 Assistant Professor, Department of Computer Science, UC Irvine

NON-ACADEMIC EXPERIENCE

1988-1996 Member of Technical Staff, Jet Propulsion Laboratory, Pasadena (full-time)

1997-present Consultant to Oracle, AT&T, Latham&Watkins, Identity Metrics, eBay, Yahoo!, Microsoft, SmithKline Beecham, First Quadrant, ImageCat, DataAnalytics LLC, Netflix, Topicseek LLC, Credit Sciences, Strativa, JW Direct, IET, Nokia Research (all part-time).

CERTIFICATIONS AND PROFESSIONAL REGISTRATIONS - none

CURRENT MEMBERSHIPS IN PROFESSIONAL ORGANIZATIONS

Association of Computing Machinery (ACM), Institute of Electrical and Electronic Engineers (IEEE), American Statistical Association (ASA), Association for the Advancement of Artificial Intelligence (AAAI)

HONORS AND AWARDS

AAAI Fellow, 2010; ACM SIGKDD Innovation Award, 2009; ACM SIGKDD Best Paper Awards in 1997 and 2002; National Science Foundation CAREER award, 1997; ACM Teaching Award, UC Irvine, 1996

SERVICE ACTIVITIES within UNIVERSITY OF CALIFORNIA

Chair and member of department graduate admissions committees, chair and member of department faculty search committees, member of school wide network and computing policy committee, member of undergraduate education committee, member of UCI campus committee

on financial aid, member of UCI campus committee on new courses, chair of UCI campus ad hoc committee on academic personnel, all between 1996 and 2010.

SERVICE ACTIVITIES outside UNIVERSITY OF CALIFORNIA

Program Chair, ACM SIGKDD Conference, 2011

Associate Editor, Journal of the American Statistical Association, 2002-2005

Associate Editor, IEEE Transactions on Knowledge and Data Engineering, 2002-2004

Associate Editor, Machine Learning Journal, 1998-2001

Editorial Board Member: Journal of Machine Learning Research, 2001-present

Editorial Board Member: Journal of Data Mining and Knowledge Discovery, 1997-present

Program Committee Member/Reviewer for conferences such as NIPS, ICML, UAI, AAAI, IJCAI, SIGKDD, WWW between 1996 and 2010

Reviewer for NSF, IEEE Trans. Info Theory, IEEE Trans Neural Networks, IEEE Trans Sig Proc., IEEE PAMI, JAIR, JASA, IEEE TKDE, JMLR, etc, between 1996 and 2010.

SELECTED PUBLICATIONS AND PRESENTATIONS from the past five years:

Learning author-topic models from text corpora, with M. Rosen-Zvi, C. Chemudugunta, T. Griffiths, and M. Steyvers, *ACM Transactions on Information Systems*, 28(1):1-38, January 2010.

A Bayesian mixture approach to modeling spatial activation patterns in multi-site fMRI data, with S. Kim and H. Stern, *IEEE Transactions on Medical Imaging*, 29(6), 1260-1274, 2010.

Distributed algorithms for topic models, with D. Newman, A. Asuncion, and M. Welling, *Journal of Machine Learning Research*, 10:1801-1828, 2009.

Circadian clock genes contribute to the regulation of hair follicle cycling, with Lin, K. K. V. Kumar, M. Gefman, D. Chudova, A. T. Ihler, R. Paus, J. S. Takahashi, B. Andersen, *PLOS Genetics*, 5(7), 2009.

Probabilistic clustering of extratropical cyclones using regression mixture models, with Gaffney, S. J., A. W. Robertson, P. Smyth, S. J. Camargo, and M. Ghil, *Climate Dynamics*, 29(4), 423-440, 2007.

Graphical models for statistical inference and data assimilation, with Ihler, A. T., Kirshner, S., Ghil, M., Robertson, A. W., *Physica D*, 230(1-2), 72-87, 2007.

Segmental hidden Markov models with random effects for waveform modeling, with S. Kim, *Journal of Machine Learning Research*, 7(Jun):945-969, 2006.

PROFESSIONAL DEVELOPMENT ACTIVITIES - none

NAME - Hal S. Stern

EDUCATION

Ph.D. Statistics, Stanford University, 1987

M.S., Statistics, Stanford University, 1985

B.S., Mathematics, Massachusetts Institute of Technology, 1981

ACADEMIC EXPERIENCE

UC Irvine Dean, Donald Bren School of Information and Computer Sciences, 2010-present

Chair, Department of Statistics, 2002-2010

Professor, Statistics, 2002-present

Iowa State University

Laurence H. Baker Chair in Biological Statistics, 2001-2002

Interim Director, L.H.Baker Center for Bioinform. and Biolog.Stat., 2000-2002

Professor of Statistics, 1997-2002

Director of Graduate Studies, 1996-1998

Associate Professor of Statistics, 1994-1997

Harvard University

Associate Professor of Statistics, 1991-1994

Director of Undergraduate Studies, 1988-1994

Assistant Professor of Statistics, 1987-1991

Stanford University

Teaching Assistant and Research Assistant (Statistics), 1983-1987

NON-ACADEMIC EXPERIENCE

Commodities Corporation, Princeton, NJ., Research Associate, 1981-1983

CERTIFICATIONS AND PROFESSIONAL REGISTRATIONS - none

CURRENT MEMBERSHIPS IN PROFESSIONAL ORGANIZATIONS

American Statistical Association

Institute of Mathematical Statistics

International Society for Bayesian Analysis

HONORS AND AWARDS

Fellow, Institute of Mathematical Statistics, 2011

Teaching Excellence Award (UCI Bren School of ICS), 2007

Laurence H. Baker Chair in Biological Statistics, Iowa State University, 2001-2002

Buckingham Scholar-In-Residence, Miami University, Oxford, OH, 2001

Fellow, American Statistical Association, 1998

SERVICE ACTIVITIES within UNIVERSITY OF CALIFORNIA

Dean, Donald Bren School of Information and Computer Sciences, UC Irvine, 2010-present
Committee on Undergraduate Admissions and Relations with Schools (CUARS), UC Irvine,
2004-2007 (Chair 2006-07)
Chair, Department of Statistics, UC Irvine, 2002-2010

SERVICE ACTIVITIES outside UNIVERSITY OF CALIFORNIA

Chair, National Academy of Sciences (NAS) Committee on National Statistics Steering
Committee for a Workshop on the Future of Federal Household Surveys. 2010
Editor (Applications & Case Studies and Coordinating), *Journal of the American Statistical
Association*, 2010-2012
Member, National Academy of Sciences Panel on Missing Data in Clinical Trials, 2009-2010
Member, NIST-NIJ Expert Working Group on Human Factors in Latent Print Analysis,
2008-2011
Member, Committee on National Statistics (CNSTAT), National Academies of Science-National
Research Council, 2008-present
Associate Editor, *Annals of Applied Statistics*, 2008-2009
Chair, National Academy of Sciences Panel on ACS Use for NSF Survey of College Graduates,
2007-2008
Member, National Academy of Sciences Panel on American Community Survey (ACS),
2004-2006

SELECTED PUBLICATIONS AND PRESENTATIONS from the past five years:

Little, RJ, D'Agostino, R, Cohen, ML, Dickersin, K, Emerson, SS, Farrar, JT, Frangakis, C,
Hogan, JW, Molenberghs, G, Murphy, SA, Neaton, JD, Rotnitzky, A, Scharfstein, D,
Shih, WJ, Siegel, JP, Stern H (2012), "The Prevention and Treatment of Missing Data in
Clinical Trials," *New England Journal of Medicine*, Vol. 367(14), pp. 1355-1360.
Bain, C.L., DePaz, J., Kramer, J., Magnúsdóttir, G, Smyth, P. J., Stern, H., and Wang, C.-C.
(2011), "Detecting the ITCZ in Instantaneous Satellite Data Using Spatial-Temporal
Statistical Modeling: ITCZ Climatology in the East Pacific," *Journal of Climate*, Vol.
24, 216-230.
Kim, S., Smyth, P, and Stern, H. (2010), "A Bayesian Mixture Approach to Modeling Spatial
Activation Patterns in Multi-site fMRI Data", *IEEE Transactions on Medical Imaging*,
Vol. 29, #6, 1260-127
Scharenbroich, L., Magnúsdóttir, G., Smyth, P., Stern, H., and Wang, C.-C. (2009), "A Bayesian
Framework for Storm Tracking Using a Hidden-State Representation", *Monthly Weather
Review*, Vol. 138, 2132-2148.
Zhang, H. and Stern, H. (2009), "Sample Size Calculation for Finding Unseen Species,"
Bayesian Analysis, Vol. 4, No. 4, 763-792.

PROFESSIONAL DEVELOPMENT ACTIVITIES - None

NAME - Arnold L. Swindlehurst

EDUCATION

Ph.D., Electrical Engineering, Stanford University, 1991
M.S., Electrical Engineering, Brigham Young University, 1986
B.S., Electrical Engineering, Brigham Young University, 1985

ACADEMIC EXPERIENCE

UC Irvine, Professor, 2007-present
Dept. of Electrical & Computer Engineering, Brigham Young University, Professor, 2001-2007
Dept. of Electrical & Computer Engineering, Brigham Young University, Chair, 2003-2006
Dept. of Electrical & Computer Engineering, Brigham Young University, Associate Professor, 1997-2001
Joint Appointment at Uppsala University, and at the Royal Institute of Technology, Visiting Professor, 1996-1997
Dept. of Electrical & Computer Engineering, Brigham Young University, Assistant Professor, 1990-1996
Dept. of Electrical Engineering, Stanford University, Research Assistant, 1988-1990
Department of Electrical Engineering, Brigham Young University, Research Assistant, 1983-1986
Eyring Research Institute, Scientific Programmer, 1983-1984

NON-ACADEMIC EXPERIENCE

ArrayComm LLC, Vice-President of Research, 2006-2007
ESL, Inc., Electrical Engineer, 1986-1990

CERTIFICATIONS AND PROFESSIONAL REGISTRATIONS - none

CURRENT MEMBERSHIPS IN PROFESSIONAL ORGANIZATIONS

IEEE

HONORS AND AWARDS

2010 IEEE Signal Processing Society Best Paper Award with Quentin Spencer and Martin Haardt for "Zero-Forcing Methods for Downlink Spatial Multiplexing in Multi-User MIMO Channels," IEEE Transactions on Signal Processing, 2004
2006 IEEE Signal Processing Society Best Paper Award with Geert Leus for "Blind and Semi-Blind Equalization for Generalized Space-Time Block Codes", IEEE Transactions on Signal Processing, 2002
2006 IEEE Communications Society Stephen O. Rice Prize in the Field of Communications Theory for the two-part paper "A Vector-Perturbation Technique for Near-Capacity Multiantenna Multiuser Communication", IEEE Transactions on Communications, 2005
Engineering Educator Award, Department of Electrical & Computer Engineering, Brigham Young University, 2005
Elevated to Fellow of the Institute of Electrical and Electronics Engineers, 2004
Karl G. Maeser Research and Creative Arts Award, Brigham Young University, 2004

2000 IEEE W. R. G. Baker Prize Paper Award with Petre Stoica for “Maximum Likelihood Methods in Radar Array Signal Processing”, IEEE Proceedings, February 1998
1998 Outstanding Faculty Award, Department of Electrical & Computer Engineering, Brigham Young University

SERVICE ACTIVITIES within UNIVERSITY OF CALIFORNIA

Associate Chair, Dept. of Electrical Engineering and Computer Science, 2010-present

SERVICE ACTIVITIES outside UNIVERSITY OF CALIFORNIA

Editor in Chief, IEEE Journal on Selected Topics in Signal Processing, 2006-2009

Editorial Review Board Member, IEEE Signal Processing Magazine, 2006-2009

Associate Editor, EURASIP Journal on Wireless Communications and Networking, 2003–2010

Member, IEEE Signal Processing Society Sensor Array and Multichannel Signal Processing (SAM) Technical Committee, 2003-present

Co-organizer and Technical Program Chair, IEEE ICASSP Conference, 2008

Editor, IEEE Signal Processing Magazine, for special issue on “Signal Processing for Positioning and Navigation”, 2005

Officer, Secretary, IEEE Signal Processing Society, 2002-2004

Co-organizer and Technical Program Chair, IEEE ICASSP Conference, 2001

SELECTED PUBLICATIONS AND PRESENTATIONS from the past five years

Wireless Relay Communications with Unmanned Aerial Vehicles: Performance and Optimization, Zhan, P., Yu, K., Swindlehurst, A., *IEEE Trans. Aerospace & Elec. Systems* (2011)

Robust Beamforming for Security in MIMO Wiretap Channels with Imperfect CSI, Mukherjee, A., Swindlehurst, A., *IEEE Trans. Signal Processing* (2011)

Adaptive Mobile Sensor Positioning for Multi-Static Target Tracking, Zhan, P., Casbeer, D., Swindlehurst, A., *IEEE Trans. Aerospace & Elec. Systems* (2010)

Performance Bounds for MIMO-OFDM Channel Estimation. Larsen, M., Swindlehurst, A., Svantesson, T. *IEEE Trans. Signal Processing*. (2009)

Optimization of MANET Connectivity via Smart Deployment/Movement of Unmanned Air Vehicles, Han, Z., Swindlehurst, A., Liu, R., *IEEE Trans. Vehicular Tech.*, (2009)

Bargaining and the MISO Interference Channel, Nokelby, M., Swindlehurst, A., *EURASIP J. of Applied Signal Processing* (2009)

Space-Time Power Schedule for Distributed MIMO Links without Instantaneous Channel State Information at the Transmitting Nodes. Rong, Y., Hua, Y., Swami, A., Swindlehurst, A. *IEEE Trans. on Signal Processing*. (2008).

PROFESSIONAL DEVELOPMENT ACTIVITIES - none

NAME - Alex Thornton

EDUCATION

B.S., Information and Computer Science, University of California, Irvine, 1996

ACADEMIC EXPERIENCE:

01/2012 to present Continuing Lecturer
07/2006 to 12/2010 Continuing Lecturer
06/2000 to 06/2006 Lecturer

NON-ACADEMIC EXPERIENCE:

For the three and a half years prior to my beginning as a lecturer, I was a professional software engineer, both as a salaried employee and as an independent contractor. I've reviewed computer science textbooks for McGraw-Hill in three subject areas: introductory computer science, data structures, and programming languages.

CERTIFICATIONS AND PROFESSIONAL REGISTRATIONS – none

CURRENT MEMBERSHIPS IN PROFESSIONAL ORGANIZATIONS - none

Association for Computing Machinery (ACM)
ACM Special Interest Group on Computer Science Education (SIGCSE)
ACM Special Interest Group on Programming Languages (SIGPLAN)

HONORS AND AWARDS:

Outstanding Professor, Donald Bren School of Information and Computer Sciences, selected by a vote of graduating ICS seniors (2005, 2006, 2008, 2009, 2010, 2011)
Campus Village Professor of the Month, selected by a vote of residents of on-campus housing at Campus Village (2005)
Excellence in Teaching Award (Department of Information and Computer Science, non-Senate faculty), presented by UCI Department of Undergraduate Education (2002)

SERVICE ACTIVITIES within UNIVERSITY OF CALIFORNIA

Served on a number of ICS schoolwide committees (e.g., Undergraduate Policy Committee, Entrepreneurship and Leadership Committee)

SERVICE ACTIVITIES outside UNIVERSITY OF CALIFORNIA-none

SELECTED PUBLICATIONS AND PRESENTATIONS from the past five years:

None

NAME - Chen S. Tsai

EDUCATION

Ph.D., Electrical Engineering, Stanford University, 1965
M.S., Electrical Engineering, Utah State University, 1961
B.S., Electrical Engineering, National Taiwan University, 1957

ACADEMIC EXPERIENCE

UC Irvine, Professor, 1980-present
Academia Sinica, Founding Director and Distinguished Research Fellow, Institute for Applied Science and Engineering Research, 2000-2002
Carnegie-Mellon Univ., Assistant Professor to Professor of Elec. Eng., 1969-1980
San Jose State Univ., Assistant Professor, 1966-1967

NON-ACADEMIC EXPERIENCE

Research Scientist, Lockheed Palo Alto Research Center, 1966-1969
Consultant to 22 research labs and government agencies in the US, 1972-present
Founding Director, Inst. of Applied Science and Eng Research, Academia Sinica, 2000-2002

CERTIFICATIONS AND PROFESSIONAL REGISTRATIONS - none

CURRENT MEMBERSHIPS IN PROFESSIONAL ORGANIZATIONS

American Association for the Advancement of Sciences (AAAS, Fellow 1992)
Institute of Electrical and Electronics Engineers (IEEE, Fellow 1983, Life Fellow 2003)
Optical Society of America (OSA, Fellow 1983)
Russian Popov Society (Honorary Foreign Member 2002)
Institute for Advancement of Engineering (IAE, Fellow 1983)
Society for Photo-optical Instrumentation Engineers (SPIE, Fellow 1987)
Photonics Society of Chinese Americans (PSCA, Fellow 1983)

HONORS AND AWARDS

Chancellor's Professorship, University of California, Irvine, January 2008-present
Academician of Academia Sinica, Taiwan (Equivalent to US NAS and NAE), 2000
Russian Academy of Engineering Sciences (Foreign Member), 2001
UCI Faculty Senate Distinguished Faculty Lectureship for Research, 1995
National Taiwan University Alumnus Award for Scholarly Research Achievement, 2007
Awarded Chair Professorship at Carnegie-Melon University, 1980
International Microoptics Award, 1995
IEEE UFFC Society Distinguished Lectureship Award, 1987
UC Irvine Lauds/Laurels Award for Distinguished Research, 1987
UC Irvine Engineering Instructor of The Year Award, 1984-1985
The first "Hall of Fame Professor" honored by the graduate students body of EECS, 1989

SERVICE ACTIVITIES within UNIVERSITY OF CALIFORNIA

Member to Chair, Campus Faculty Senate Awards and Honors Committee, 2004-07
Member of School of Engineering Faculty Improvement/Impact Committee, 2003-2007
Chair or Co-chair, Department Faculty Improvement Committee, 2004-present
Member, Executive Committees of School of Engineering, 2007

Chaired or served as member of a significant number of Academic Personnel Ad Hoc Review and Recruitment Committees, 1981-present

SERVICE ACTIVITIES outside UNIVERSITY OF CALIFORNIA

Associate Editor, IEEE Trans. on UFFC, 1980-1992

Member, International Scientific Committee of Acoustooptics, 1998-

Member, International Advisory Committee of Microoptics Conference, 1988-

Reviewer for prestigious journals such as Appl. Phys. Lett., J. of Appl. Phys., Optics Express, IEEE J. of Lightwave Tech., IEEE J. of Quantum Electro., IEEE Trans. UFFC

NSF NIRT Panel on Nano-Photonics and NIH Proposal Review Panel

SELECTED PUBLICATIONS AND PRESENTATIONS from the past five years

Articles, Encyclopedia

RF Spectrum Analyzers Using Integrated Optics. C. S. Tsai, *Encyc. Handbook of Integrated Optics* (pp 335-358), CRC Press, Taylor and Francis, 2006, K. Iga, Y. Kokubun (Eds.)

Articles, Journal

“A Polarizer Using Thin Metallic-Film Sub-Wavelength Grating for Infrared to Terahertz Region,” K. Shiraishi, S. Ogama, C.S. Tsai, *J. Lightwave Technology*, 29, 2011.

“A New Approach for Analysis of Magnetostatic Volume Waves in Magnonic Crystals,” K.H. Chi, Y. Zhu, R.W. Mao, J.P. Dolas, and C.S. Tsai, *J. of Applied Physics*, April 2011.

“A Varactor- and FMR-Tuned Wideband Band-Pass Filter Module with Superior Frequency Selectivity,” Y. Zhu, R.W. Mao, C.S. Tsai, *IEEE Trans. Magn*, 47, 284-288, Feb 2011.

“MEMS-based multiple Fourier-horn ultrasonic nozzles for biomedical applications,” C.S. Tsai, R.W. Mao, S.K. Lin, N. Wang, S.C. Tsai, *Lab on a Chip*, 10, 2733-2740, Sept 2010.

“A Compact X-Band Tunable Band-Pass Filter Module Using A Pair of Microstrip Composite Band-Pass Filters in Cascade,” Y. Zhu, G. Qiu, K.H. Chi, B.T. Wang, C.S. Tsai, *IEEE Trans. Magn.*, 46 (6), 1424-1427, June 2010.

“Silicon-Based MHz Ultrasonic Nozzles for Production of Monodisperse Micron-Sized Droplets,” Tsai, S. C., Cheng, C. H., Wang, N., Song, Y. L., Lee, C. T., Tsai, C. S. *IEEE Trans. on Ultras./Ferroelectrics and Frequency Control (UFFC)*, 56(9), 1968-1979, 2009.

“A Silicon-Based Spot-Size Converter between Single-Mode Fibers and Si-Wire Waveguide,” H. Yoda, H. Ikedo, K. Shiraishi, C.S. Tsai, *Appl. Phys. Lett.*, 91, 141120, 2007.

“Stimulated Emission in a Nanostructured Silicon PN Junction Diode Using Current Injection,” M.J. Chen, J.L. Yen, J.Y. Li, J.F. Chang, S.C. Tsai, and C.S. Tsai, *Applied Physics Letters*, 84, 2163-2165, March 2004 (Also March 26, 2004 issue of *Virtual J. of Nanoscale Science and Technology*).

Books, Chapters

Guided-Wave Acoustooptic Interactions and Devices, Springer-Verlag, 1990

Acousto-Optic Devices and Applications. Chang, I. C., Tsai, C. S. In *OSA Handbook of Optics*. McGraw-Hill, 2008.

PROFESSIONAL DEVELOPMENT ACTIVITIES - none

NAME – Gene Tsudik

EDUCATION

PhD in Computer Science, University of Southern California, April 1991 (Advisor: D. Estrin).
MS in Computer Science, University of Southern California, May 1987.
BS in Computer Science, University of Houston, May 1985.

ACADEMIC EXPERIENCE

07/03 – present Full Professor, Computer Science Department, UC Irvine
01/00 – 06/03 Associate Professor, Information & Computer Science Department, UC Irvine.
08/98 – 12/99 Research Associate Professor, Computer Science Department, USC, Los Angeles.
08/87 – 04/91 Research Assistant, USC Computer Networks Laboratory, Los Angeles.
06/85 – 05/90 Member of Technical Staff, IBM Scientific Center, Los Angeles.

NON-ACADEMIC EXPERIENCE

04/07 – 10/07 Fulbright Senior Scholar, University of Rome (“La Sapienza”), Italy
04/96 – 12/99 Project Leader, USC Information Sciences Institute, Marina Del Rey.
01/95 – 03/96 Project Leader, IBM Research Laboratory, Zurich, Switzerland.
04/91 – 01/95 Research Staff Member, IBM Research Laboratory, Zurich, Switzerland.
06/85 – 05/90 Member of Technical Staff, IBM Scientific Center, Los Angeles.

CERTIFICATIONS AND PROFESSIONAL REGISTRATIONS – none

HONORS AND AWARDS

IEEE Fellow, November 2012
Technical University of Delft (The Netherlands), Cor Wit Visiting Chair Award, 2009-2010.
Fulbright Senior Scholar Award, University of Rome – “La Sapienza” (Italy), April-October 2007.

- o Fulbright Inter-Country Award at University of Malaga, (Spain). September 2007.
- o Fulbright Intra-Country Award at University of Trento, (Italy), August 2007.

DARPA Dynamic Coalitions Award for Excellence in Academic Research, January 2002.
IBM Second Plateau Invention Achievement Award, February 1996.
IBM Outstanding Innovation Award, September 1994.
IBM First Plateau Invention Achievement Award, June 1994.
IBM Initial Patent Application Award, August 1992.

SERVICE ACTIVITIES within UNIVERSITY OF CALIFORNIA

SERVICE ACTIVITIES outside UNIVERSITY OF CALIFORNIA

Editor-in-Chief, ACM Transactions on Information Systems Security (TISSEC)

Program Chair/co-Chair:

- o 2000 ISOC Network and Distributed Systems Security Symposium (NDSS’00)
- o 1999 ACM Conference on Computer and Communications Security (ACM-CCS’99)
- o 1999 ISOC Network and Distributed Systems Security Symposium (NDSS’99)
- o 2005 European Workshop on Security in Ad Hoc and Sensor Networks (ESAS’05)
- o 2006 IEEE Network Protocols Security Workshop (NPSEC’06)
- o 2006 ACM Scalable Trusted Computing Workshop (STC’06)
- o 2008 International Conference on Financial Cryptography and Data Security (FC’08)
- o 2009 IACR Conference on Practice and Theory of Public Key Cryptography (PKC’09)

SELECTED PUBLICATIONS AND PRESENTATIONS from the past five years:

1. M. Al Mishari and G. Tsudik, “Exploring Linkability of User Reviews”, ESORICS 2012.
2. E. De Cristofaro, C. Soriente, G. Tsudik and A. Williams, “Hummingbird: Privacy at the Time of Twitter”, IEEE Symposium on Security and Privacy, 2012.
3. E. De Cristofaro, S. Faber, P. Gasti and G. Tsudik: “Genodroid: are privacy-preserving genomic tests ready for prime time?” ACM Workshop on Privacy in Electronic Society, 2012.
4. S. Dibenedetto, P. Gasti, G. Tsudik and E. Uzun, “ANDaNA: Anonymous Named Data Networking Application”, ISOC Symposium on Network and Distributed System Security (NDSS), 2012.
5. K. Eldefrawy, A. Francillon, D. Perito and G. Tsudik, “SMART: Secure and Minimal Architecture for Establishing Dynamic Root of Trust“, ISOC Symposium on Network and Distributed System Security (NDSS), 2012.

6. E. De Cristofaro, S. Jarecki, J. Kim and G. Tsudik, "Privacy-Preserving Policy-Based Information Transfer". PETS'09.
7. X. Ding, G. Tsudik and S. Xu, "Leak-free Mediated Group Signatures", Journal of Computer Security Vol. 17 (4): 489-514, 2009.
8. M. Burmester, T. Van Le, B. de Medeiros and G. Tsudik, "Universally Composable RFID Identification and Authentication Protocols. ACM TISSEC, Vol. 12, No. 4, 2009.
9. S. Jarecki, J. Kim and G. Tsudik, "Beyond Secret Handshakes: Affiliation-Hiding Authenticated Key Exchange". CT-RSA'08.
10. G. Tsudik, "A Family of Dunces: Trivial RFID Authentication Protocols", PETS'07.
11. A. Kumar, N. Saxena, G. Tsudik and Ersin Uzun. "Caveat Emptor: A Comparative Study of Secure Device Pairing Methods", IEEE PerCom'09.
12. R. Di Pietro, L. Mancini, C. Soriente, A. Spognardi and G. Tsudik, "Catch Me (If You Can): Data Survival in Unattended Sensor Networks", IEEE Percom'08.
13. D. Ma and G. Tsudik, "Forward-Secure Aggregate Authentication", IEEE Symposium on Security and Privacy 2007.
14. K. Eldefrawy and G. Tsudik, "ALARM: Anonymous Location-Aided Routing in MANETs", IEEE ICNP'07.
15. S. Jarecki, J. Kim and G. Tsudik, "Robust Group Key Agreement using Short Broadcasts", ACM CCS'07.

NAME – Alexander V. Veidenbaum

EDUCATION

Ph.D., Computer Science, University of Illinois at Urbana-Champaign, 1985
Engineering Diploma, EE, Institute of Telecommunications, Leningrad, USSR 1974

ACADEMIC EXPERIENCE

9/98 to Present: Professor, Computer Science, University of California Irvine.
1/95 to 8/98: Associate Professor, Electrical Engineering and Computer Science, University of Illinois at Chicago.
2/85 to 6/94: Research Faculty, Center for Supercomputing Research and Development, University of Illinois at Urbana-Champaign

NON-ACADEMIC EXPERIENCE

2000 - 2001 Director, System Platforms, Bytemobile Inc. (*while on leave from UCI*)
1994 – 1995 Technical Director, International Supercomputing Technology Institute, Mulhouse, France

CERTIFICATIONS AND PROFESSIONAL REGISTRATIONS - none

CURRENT MEMBERSHIPS IN PROFESSIONAL ORGANIZATIONS

IEEE, IEEE Computer Society.
ACM, SIGARCH, and SIGOPS

HONORS AND AWARDS

Best Paper Award, International Joint Conference on Neural Networks, 2009
Recognition of Service Award, ACM 2009
Recognition of Service Award, ACM 2005
Best Paper Award, IEEE International Conference on Computer Design, 2005
Recognition of Service Award, ACM 2000
Best Paper Award (Software), IEEE Supercomputing'91 Conference

SERVICE ACTIVITIES within UNIVERSITY OF CALIFORNIA

Chair, Council on Research, Computing, and Libraries (CORCL) (AY 2006-2007)
Member of the Academic senate Cabinet (AY 2006-2007)
Development of International M.S. in CS, concentration in Embedded Systems 2006-2008
Co-Director, International M.S. in CS, concentration in Embedded Systems 2007-2008
Chair, ICS Space committee (AY 2007-2008)
CS Communications committee (AY 2010-2011)

SERVICE ACTIVITIES outside UNIVERSITY OF CALIFORNIA

2010 IEEE/ACM International Conference on Green Computing and Communications
2010 ACM/IEEE International Conference on Parallel Architecture and Compilation Techniques

2010 ACM International Conference on Computing Frontiers
(Program Chair) 2009 ACM International Conference on Computing Frontiers
(Track Chair) 2007 IEEE International Conference on Computer Design
2006 ACM/IEEE International Symposium on Computer Architecture
(Program Co-Chair) 2005 IEEE/ACM International Symposium on Microarchitecture. (Micro38)
(Chair) Steering Committee of the ACM International Conference on Supercomputing
Steering Committee of the ACM International Conference on Computing Frontier

SELECTED PUBLICATIONS AND PRESENTATIONS from the past five years:

“A Hardware Mechanism to Reduce the Energy Consumption of the Register File for In-Order Architectures”, Jose L. Ayala, Marisa Lopez-Vallejo, Alex Veidenbaum, Carlos A. Lopez. *International Journal of Embedded Systems (IJES)*. Vol. 3(4), pp. 285-293, 2008

“Optimizing CAM-based instruction cache designs for low-power embedded systems,” Juan L. Aragón and Alexander V. Veidenbaum. *Journal of Systems Architecture* (formerly Euromicro). Vol.54(12), pp. 1155- 1163. 2008

“On the Exploitation of Loop-level Parallelism in Embedded Applications,” Arun Kejariwal, Alexander V. Veidenbaum, and Alexandru Nicolau, and Milind Girkar, Xinmin Tian and Hideki Saito. *ACM Transactions on Embedded Computing Systems*. Vol. 8(2), 2009.

“Brain Derived Vision Algorithm on High Performance Architectures,” Jayram Moorkanikara Nageswaran, Andrew Felch, Ashok Chandrasekhar, Nikil Dutt, Richard Granger, Alex Nicolau, Alex Veidenbaum. *International Journal of Parallel Programming*, Volume 37, Number 4, p. 345-369, 2009

“A configurable simulation environment for the efficient simulation of large-scale spiking neural networks on graphics processors,” Jayram Moorkanikara Nageswaran, Nikil Dutt, Jeffrey L. Krichmar, Alex Nicolau, Alexander V. Veidenbaum. *Elsevier Journal of Neural Networks*, Vol. 22(5-6), pp. 791-800, 2009

"A Distributed Processor State Management Architecture for Large-Window Processors," _Isidro Gonzalez, Marco Galluzzi, Alex Veidenbaum, Marco A. Ramirez, Adrian Cristal, Mateo Valero _41st Intl. Symposium on Microarchitecture (Micro-41). Dec. 2008

"A Two-Level Load/Store Queue based on Execution Locality," _Miquel Pericas, Adrian Cristal, Francisco J. Cazorla, Ruden Gonzalez, _Alex Veidenbaum, Daniel A. Jimenez, and Mateo Valero. Proc. 35th ACM International Symposium on Computer Architecture (ISCA) June 2008

PROFESSIONAL DEVELOPMENT ACTIVITIES - none

NAME - Nalini Venkatasubramanian

EDUCATION

Ph.D., Computer Science, University of Illinois Urbana-Champaign, 1998

M.S., Computer Science, University of Illinois Urbana-Champaign, 1991

B.E., Computer Science and Engineering, Bangalore University, 1989

ACADEMIC EXPERIENCE

UC Irvine, Professor, 2008-present, Full-time

UC Irvine, Associate Professor, 2004-2008, Full-time

UC

UC Irvine, Assistant Professor, 1998-2004, Full-time

Visiting Lecturer, University of Illinois, Fall 1997

NON-ACADEMIC EXPERIENCE

Hewlett-Packard Laboratories , Member of Technical Staff, Future Systems Lab, Broadband Information Systems Lab, 1994 – 1998

Hewlett-Packard Company, Member of Technical Staff, Database Lab, 1991 – 1994

CERTIFICATIONS AND PROFESSIONAL REGISTRATIONS - none

CURRENT MEMBERSHIPS IN PROFESSIONAL ORGANIZATIONS -

Association for Computing Machinery (ACM)

Institute for Electrical and Electronic Engineers (IEEE)

HONORS AND AWARDS -

National Science Foundation Career Award, Networking Research Program, 1999.

Teaching Excellence Award, Division of Undergraduate Education, UC Irvine, 2002.

Best Paper Award, IEEE Consumer Comm. and Networking (CCN) Conference, 2006.

Best Student Paper Award, IEEE Workshop on Multimodal Sentient Computing: Sensors, Algorithms and Systems (WMSC 2007) held in conjunction with IEEE CVPR 2007.

SERVICE ACTIVITIES within UNIVERSITY OF CALIFORNIA

- Member, UC Irvine CEP SubCommittee on Courses (2006 -- 2009)
- Co-Director, Networked Systems Program, UC Irvine (2010 – 2011)
- **ICS** Undergraduate Policy Committee (2007-2010), (2003-2004)
- Chair, Department of Computer Science Chair Search Committee
- Multiple faculty search committees.
-

SERVICE ACTIVITIES outside UNIVERSITY OF CALIFORNIA

- Program Co-Chair, NSF Indo-US Workshops on Pervasive Communications and Computing (PC3) – March 2011, New Delhi; July 2011, Washington D.C.
- General Co-chair, 11th IEEE/ACM Intl Symp on Cluster, Cloud and Grid Computing (CCGrid 2011).

- Program Co-Chair, The Third International Conference on MOBILE Wireless MiddleWARE, Operating Systems, and Applications (MobilWare 2011).
- Invited Speaker, Schools on Formal Methods (SFM) Series, Interoperability in Complex Distributed Systems, Bertinoro (Italy), June 2011.
- Keynote Speaker, ACM Middleware Doctoral Dissertation Symposium, December 2010.
- Invited speaker, Networking Networking women , ACM MobiCOM/MobiHOC 2010.
- Editorial Board – Elsevier Journal on Sustainable Computing: Informatics and Systems, IEEE Transactions on Mobile Computing.
- Co-editor, Special Issue of IEEE Communications on Middleware for Communication Networks.
- Invited Panelist, National Academy of Sciences Workshop on Mobile Alerting, April 2010.
- Program Co-chair, 9th Workshop on Adaptive and Reflective Middleware to be held with ACM Middleware 2010 (ARM 2010).
- Program Co-chair, ACM MOVID 2010, 2nd Workshop on Mobile Video Delivery to be held in conjunction with ACM Multimedia 2010.
- Program Co-chair, IEEE International Conference on Service-Oriented Computing and Applications 2010 (SOCA 2010).

SELECTED PUBLICATIONS AND PRESENTATIONS from the past five years:

- B. Xing, S. Mehrotra and N. Venkatasubramanian. “RADcast: Enabling Reliability Guarantees for Content Dissemination in Ad Hoc Networks”. 28th IEEE INFOCOM 2009.
- H. Jafarpour, B. Hore, S. Mehrotra and N. Venkatasubramanian. CCD: Efficient Customized Content Dissemination in Distributed Publish/Subscribe. ACM Middleware '09.
- H. Jafarpour, B. Hore, S. Mehrotra and N. Venkatasubramanian. "Subscription Subsumption Evaluation for Content-based Publish/Subscribe Systems", ACM Middleware '08.
- B. Hore, J. Wickramasuriya, S. Mehrotra, N. Venkatasubramanian, Daniel Massaguer. “Privacy-Preserving Event Detection for Pervasive Spaces”. IEEE Pervasive Computing and Communications (Percom 2009), March 2009.
- Q. Han and N. Venkatasubramanian, Timeliness-Accuracy Balanced Collection of Dynamic Data , IEEE Trans on Parallel and Distributed Systems (TPDS), 18,2, February 2007.
- S. Mohapatra, N. Dutt, A. Nicolau, N. Venkatasubramanian, DYNAMO: A Cross-Layer Framework for End-to-End QoS and Energy Optimization in Mobile Handheld Devices, IEEE JI on Selected Areas in Communications, 2007.
- Mayur Deshpande, Abhishek Amit, Mason Chang, Nalini Venkatasubramanian and Sharad Mehrotra. Flashback: A Peer-to-Peer Webserver for Handling Flash Crowds, IEEE Intl Conf on Distributed Computing Systems, ICDCS 2007.
- Q. Han and N. Venkatasubramanian, Timeliness-Accuracy Balanced Collection of Dynamic Data , IEEE Trans on Parallel and Distributed Systems (TPDS), V18,N2, February 2007.
- Q. Han and N. Venkatasubramanian, Information Collection Services for QoS-aware Mobile Applications, IEEE Transactions on Mobile Computing (TMC), Vol.5, No.5, May 2006

PROFESSIONAL DEVELOPMENT ACTIVITIES

NAME - Max Welling

EDUCATION

PhD, Physics, Utrecht University, 1998

B.A., Physics, Utrecht University, 1993

ACADEMIC EXPERIENCE

UC Irvine, Professor, 2009-present, Full-time

UC Irvine, Associate Professor, 2006-2009, Full-time

UC Irvine, Assistant Professor, 2003-2006, Full-time

University Toronto, postdoc, 2001-2003, Full-time

University College London, postdoc, 200-2001, Full-time

Caltech, postdoc, 1998-2000, Full-time

NON-ACADEMIC EXPERIENCE

Identity Metrics, Consultant, 2010-present

M&M Trading, Consultant, 2010

Julius Finance, consultant, 2008

CERTIFICATIONS AND PROFESSIONAL REGISTRATIONS - none

CURRENT MEMBERSHIPS IN PROFESSIONAL ORGANIZATIONS - none

HONORS AND AWARDS - 2010 ECCV Koenderink Prize

SERVICE ACTIVITIES within UNIVERSITY OF CALIFORNIA

Member, CS Student Outreach, Access and Retention Committee, 2009-present

Member, CS Communications Committee, 2010-present

Member, Campus Wide Honors Program Board, 2010-present

Member, Advisory Committee to the dean for selecting chair, 2009-2010

Member, Graduate Recruitment Committee, 2009-2010

Chair, Tenure Committee Prof. Hayes 2009-2010

Member, Bio-informatics Recruitment Committee, 2006

Member, Educational Policy Committee, 2004-2006

Member, Academic Senate Assembly Representative, 2004-2006

SERVICE ACTIVITIES outside UNIVERSITY OF CALIFORNIA

Program Chair, Int'l Conf. AI and Statistics, 2009

Senior Advisory Committee, Int'l Conf. AI and Statistics, 2010

Tutorials Chair, Int'l Conf. Machine Learning, 2007

Senior Program Committee, Conf. Neural Information processing Systems, 2008
Senior Program Committee, Int'l Conf. machine Learning, 2008
Senior Program Committee, Conf. on Uncertainty in AI, 2006
Program Committee, Conf. Neural Information Processing Systems, '02,'03,'04,'06,'09,'10
Program Committee, Int'l Conf. Machine Learning, '04,'06
Program Committee, Int'l Conf. AI and Statistics, '05,'07,'10
Program Committee, Conf. Uncertainty in AI, '05,'06,'07
Associate Editor, IEEE Transactions Pattern Analysis and Machine Intelligence, 2007-present
Associate Editor, Journal of Computational and Graphical Statistics, 2007-2009
Associate Editor, Neurocomputing, 2004-2007
Editorial Board, Journal Machine Learning Research, 2009-present
Editorial Board, Machine Learning Journal, 2010-present
Member, NSF Panel, 2007,2009, 2009,2010

SELECTED PUBLICATIONS AND PRESENTATIONS from the past five years:

- E. Bart, P. Perona, M. Welling, 2009, *Unsupervised organization of image collections: taxonomies and beyond*, IEEE Transactions on Pattern Analysis and Machine Intelligence (accepted)
- Kume and M. Welling, 2010, *Maximum-likelihood estimation for the offset normal shape distributions using EM*, Journal of Computational and Graphical Statistics, Vol. 19, No. 3: pp. 702723
- D. Newman, A. Asuncion, P. Smyth, M. Welling, 2009, *Distributed Algorithm for Topic Models*, Journal Machine Learning Research 10, 2009, pp.1801-1828.
- K. Kurihara and M. Welling, *Bayesian K-Means as a "Maximization-Expectation" Algorithm*, 2008, Neural Computation 21(4), pp.1-28
- A. Holub, M. Welling and P. Perona, *Hybrid Generative-Discriminative Visual Categorization*, 2008, International Journal of Computer Vision 77(1-3), pp.239-258
- A. Gelfand, L. Van Der Maaten, Y. Chen, M. Welling, *On Herding and the Perceptron Cycling Theorem*, 2010, Neural Information Processing Systems 23 (NIPS2010), accepted.
- Y. Chen, M. Welling, A. Smola, *Super-Samples from Kernel Herding*, 2010, Conf. on Uncertainty in Artificial Intelligence (UAI2010), accepted.
- Y. Chen, M. Welling, *Dynamical Products of Experts for Modeling Financial Time Series*, 2010, International Conference Machine Learning (ICML-10), pp.207-214.
- I. Porteous, A. Asuncion, M. Welling, *Bayesian Matrix Factorization with Side Information and Dirichlet Process Mixtures*, 2010, Twenty-Fifth Conference on Artificial Intelligence (AAAI-10), p 563-568.
- M. Welling, 2009, *Herding Dynamic Weights for Partially Observed Random Field Models*, Conf. on Uncertainty in Artificial Intelligence (UAI2009), pp. 599-606

PROFESSIONAL DEVELOPMENT ACTIVITIES -none

NAME - Hemantha K. Wickramasinghe

EDUCATION

Ph.D., Electronic and Electrical Engineering, University College, University of London, 1974
B.S., Electronic and Electrical Engineering, Kings College, University of London, 1970

ACADEMIC EXPERIENCE

UC Irvine, Professor, 2006-present
University College London, Lecturer (tenured) in Electronic and Electrical Engineering (roughly equiv to Assoc Prof), 1978-1983
E.L.Ginzton Laboratory, Stanford University, Research Associate, 1975-1978
Department of Electronic and Electrical Engineering, University College London, Associate Research Assistant, 1974-1975

NON-ACADEMIC EXPERIENCE

IBM Almaden Research Center, IBM Fellow and CTO Science and Technology, 2005-2006
Nanoscale Science & Technology, IBM Almaden Research Center, IBM Fellow & Senior Department Mgr, 2002-2006
Physical Science Dept., IBM T.J. Watson Research Center, Manager, Imaging Science and Measurement Technology, 1996-2002
Manufacturing Research Dept., IBM T.J. Watson Res Ctr, Manager, Physical Measurements, 1984-1996
Manufacturing Research Dept., IBM T.J. Watson Res Ctr, Chief Scientist, Manufacturing Res. Dept., 1992-1994
IBM, T.J. Watson Research Center, Yorktown Heights, New York, Consultant, on "Optical Heterodyne Detection as Applied to Novel Imaging Systems", October 1983-December 1983
The General Electric Company Ltd., Hirst Research Center, U.K., on Acoustic/Photoacoustic Microscopy, August 1980-1983
United Kingdom Atomic Energy Authority, Harwell, Consultant, on Acoustic Microscopy, October 1980-December 1982

CERTIFICATIONS AND PROFESSIONAL REGISTRATIONS - none

CURRENT MEMBERSHIPS IN PROFESSIONAL ORGANIZATIONS - none

HONORS AND AWARDS

Micro/Nano 25 Award, R & D Magazine, 2006
Scientific American 50 award, 2006
Research Division Master Inventor, 1994-2004
APS Joseph F. Keithley Award – for “pioneering contributions to nanoscale measurement science through their leadership in the development of a range of nanoscale force microscopes that have had a major impact in many areas of Physics”, 2000
Appointed IBM FELLOW by IBM Chairman and CEO Lou Gerstner, 2000
Distinguished Corporate Inventor Award, National Inventors Hall of Fame, 1998
National Academy of Engineering, 1998

Designated "Top IBM Inventor", 1997
Elected to IBM Academy of Technology (1993) - for "leadership in transfer of high precision metrology tools to IBM", 1993
IBM Outstanding Technical Achievement, 1992
IBM Outstanding Technical Achievement Award, 1992
IBM Research Division Award for "contributions to liquid particle detector", 1992
IEEE Field Award (IEEE Morris E. Leeds Award)- for "pioneering contributions to electrical techniques for nanometer-scale measurement of magnetic, electrostatic, thermal and optical properties of surfaces", 1992
Designated "Top IBM Inventor", among top thirteen in the Corporation, 1991
IBM Outstanding Innovation Award for "first dynamic mode AFM with laser sensing of scanning probe", 1991
Vladimir K. Zworykin Premium of IEE (UK) for "Contributions to Scanning Acoustic Microscopy", 1983
IEEE Trans Sonics & Ultrasonics Group Best Paper Award, 1982

SERVICE ACTIVITIES within UNIVERSITY OF CALIFORNIA
The Henry Samueli Endowed Chair, 2006-present

SERVICE ACTIVITIES outside UNIVERSITY OF CALIFORNIA - none

SELECTED PUBLICATIONS AND PRESENTATIONS from the past five years

Articles, Encyclopedia

Novel Approaches in Low Cost, High Throughput Gene Sequencing. Wickramasinghe, H. K., Unal, K. In R. Meyers (Ed.), *Encyclopedia of Analytical Chemistry* John Wiley. (2009).

Articles, Journal

Selective probing of mRNA expression levels within a living cell. Nawarathna, D., Turan, T., Wickramasinghe, H. K. *Appl. Phys. Lett.*, 95(9). (2009).

Localized Electroporation and Delivery into Single Living Cells by Atomic Force Microscopy. Nawarathna, D., Unal, K., Wickramasinghe, H. K. *Appl. Phys. Lett.*, 93(1). (2008).

Nanoscale Quantitative Stress Mapping with Atomic Force Microscopy. Unal, K., Wickramasinghe, H. K. *Appl. Phys. Lett.*, 90, 113111. (2007).

Ultra-High-Density Phase-Change Storage and Memory. Hamann, H. F., O'Boyle, M. P., Martin, Y., Rooks, M., Wickramasinghe, H. K. *Nature Materials*, 5, 383–387. (2006).

Conference/Workshop/Symposium Proceedings

A New Route to Ultra-High Density Memory Using the Micro to Nano Addressing Block (MNAB). Shenoy, R. S., Gopalakrishnan, K., Rettner, C. T., Bozano, L. D., King, R. S., Kurdi, B., Wickramasinghe, H. K. *2006 Symposium on VLSI Technology*, (pp. 2). IEEE Cat. No. 06CH37743C. (2006).

PROFESSIONAL DEVELOPMENT ACTIVITIES - none

NAME - Xiaohui Xie

EDUCATION

Ph.D, Computer Neuroscience, Massachusetts Institute of Technology, 2002
M.S., Electrical Engineering and Computer Science, M.I.T., 2000
M.S., Biophysics, Chinese Academy of Sciences, 1997
B.E., Physics, Nanjing University, 1994

ACADEMIC EXPERIENCE

UC Irvine, Assistant Professor, 2007-present, Full-time
Broad Institute of MIT and Harvard, Postdoctoral Fellow, 2003-2007

NON-ACADEMIC EXPERIENCE - none

CERTIFICATIONS AND PROFESSIONAL REGISTRATIONS - none

CURRENT MEMBERSHIPS IN PROFESSIONAL ORGANIZATIONS - none

HONORS AND AWARDS -

National Science Foundation Career Award, NSF, 2009
Dean's Faculty Research Incentive Award, UC Irvine, 2009

SERVICE ACTIVITIES within UNIVERSITY OF CALIFORNIA

Member, UCI Bioinformatics Faculty Recruiting Committee, 2008
Member, UCI Systems Biology Faculty Recruiting Committee, 2011

SERVICE ACTIVITIES outside UNIVERSITY OF CALIFORNIA

Associate Editor, BMC Bioinformatics, 2010-present

SELECTED PUBLICATIONS AND PRESENTATIONS from the past five years:

1. Ye GB and Xie X, Split Bregman method for large scale fused Lasso, Computational Statistics and Data Analysis, doi:10.1016/j.csda.2010.10.021, 2010.
2. Daily K, Rigor P, Christley S, Xie X, and Baldi P, Data structures and compression algorithms for high-throughput sequencing technologies, BMC Bioinformatics, 11:514, 2010.
3. Xie X, Site-frequency spectrum of linked sites. Bulletin of Mathematical Biology, 10.1007/s11538-010-9534-3, 2010.
4. Potkin SG, Macciardi F, Guffanti G, Wang Q, Turner JA, Lakatos A, Miles MF, Lander A, VawterMP, and Xie X, Identifying gene regulatory networks in Schizophrenia. NeuroImage, 53(3):839-847, 2010.

5. Wang Y, Christley S, Mjolsness E, and Xie X, Parameter inference for discretely observed stochastic kinetic models using stochastic gradient descent. *BMC Systems Biology*, 4:99, 2010.
6. Wang J, Cetindil I, Ji S, Li C, Xie X, Li G, and Feng J, Interactive and fuzzy search: a dynamic way to explore Medline. *Bioinformatics*, 26(18):2321-2327, 2010
7. Chong H, Infante A, Seo Y, Jeon T, Ahang Y, Edwards P, Xie X, and Osborne TF, Genome-wide interrogation of hepatic FXR reveals an asymmetric IR-1 motif and synergy with LRH-1. *Nucleic Acids Research*, 38(18):6007-17, 2010.
8. Kumar L, Breakspear A, Kistler HC, Ma LJ, and Xie X, Systematic discovery of regulatory motifs in *Fusarium graminearum* by comparing four *Fusarium* genomes. *BMC Genomics*, 11:208, 2010.
9. Ma LJ, van der Does HC, Borkovich KA, Coleman JJ, Daboussi MJ et al., Comparative genomics reveals mobile pathogenicity chromosomes in *Fusarium*. *Nature*, 464:367-73, 2010
10. Christley S, Nie Q, and Xie X, Incorporating existing network information into gene network inference. *PLoS One*, 4:e6799, 2009.
11. Seo YK, Chong HK, Infante AM, Im SS, Xie X, and Osborne TF, Genome-wide analysis of SREBP-1 binding in mouse liver chromatin reveals a preference for promoter proximal binding to a new motif. *Proc Natl Acad Sci USA*, 106:13765-9, 2009
12. Garber M, Guttman M, Clamp M, Zody MC, Friedman N, and Xie X, Identifying novel constrained elements by exploiting biased substitution patterns. *Bioinformatics*, 25:i54-62, 2009.
13. Fraser H and Xie X, Common polymorphic transcript variation in human disease, *Genome Research*, 19:567-75, 2009.
14. Sieglaff DH, Dunn WA, Xie X, Megy K, Marinotti O and James AA, Comparative genomics allows the discovery of cis-regulatory elements in mosquitoes, *Proc Natl Acad Sci USA*, 106:3053-8, 2009.
15. Xie X, Rigor P, and Baldi P, MotifMap: a human genome-wide map of candidate regulatory motif sites. *Bioinformatics*, 25:167-74, 2009.
16. Christley, S, Lu Y, Li C, and Xie X, Human genomes as email attachments. *Bioinformatics*, 25:274-5, 2009.

PROFESSIONAL DEVELOPMENT ACTIVITIES - none

NAME - Guoqing (Harry) Xu

EDUCATION

PhD, Computer Science, The Ohio State University, 2011

ACADEMIC EXPERIENCE

UC Irvine, Assistant Professor, 2011-Present

NON-ACADEMIC EXPERIENCE

Intern/Co-op, IBM T. J. Watson Research Center, 2008-2011

CERTIFICATIONS AND PROFESSIONAL REGISTRATIONS

Association for Computing Machinery, August 1, 2004-Present

HONORS AND AWARDS

IBM Research Ph.D. Fellowship, 2010-2011

ACM SIGSOFT Distinguished Paper Award at ICSE'08

SERVICE ACTIVITIES within UNIVERSITY OF CALIFORNIA

Member, Admissions Committee, November 1, 2011-May 1, 2012

Member, Steering Committee of the Software Engineering Undergraduate Program, August 1, 2011-Present

SERVICE ACTIVITIES outside UNIVERSITY OF CALIFORNIA

Reviewer, Journal Article, ACM Transactions on Embedded Computing Systems, May 1, 2012 - Present

Reviewer, Journal Article, IEEE Transactions on Computers, March 1, 2012 - Present

Reviewer, Journal Article, Science of Computer Programming, August 1, 2011 - Present

Chair, Workshop/Tutorial Selection Committee of PPOPP'13, July 1, 2012 - March 1, 2013

Member, Program Committee of the 2012 OOPSLA SRC, April 1, 2012 - October 26, 2012

SELECTED PUBLICATIONS AND PRESENTATIONS from the past five years

Articles, Journal

R. Khatchadourian, P. Greenwood, A. Rashid, G. Xu, "Pointcut rejuvenation: Recovering pointcut expressions in evolving aspect-oriented software", *IEEE Transactions on Software Engineering*, vol. 38, pp. 642--657, January 2012.

Conference/Workshop/Symposium Proceedings

G. Xu, *Finding reusable data structures*, ACM SIGPLAN Conference on Object-Oriented Programming Systems, Languages, and Applications (OOPSLA), 2012

G. Xu, D. Yan, A. Rountev, *Static detection of loop-invariant data structures*, European Conference on Object-Oriented Programming (ECOOP), In *Lecture Notes in Computer Science*. Springer-Verlag, 2012.

D. Yan, G. Xu, A. Rountev, *Demand-driven context-sensitive alias analysis for Java*, ACM SIGSOFT International Symposium on Software Testing and Analysis (ISSTA). ACM Press, 2011.

G. Xu, M. Bond, F. Qin, A. Rountev, *Leakchaser: Helping programmers narrow down causes of memory leaks*, ACM SIGPLAN Conference on Programming Language Design and Implementation (PLDI). ACM Press, 2011.

G. Xu, N. Mitchell, M. Arnold, A. Rountev, E. Schonberg, G. Sevitsky, *Demand-driven context-sensitive alias analysis for Java*, ACM SIGPLAN Conference on Programming Language Design and Implementation (PLDI). ACM Press, 2010.

G. Xu, A. Rountev, *Detecting inefficiently-used containers to avoid bloat*, ACM SIGPLAN Conference on Programming Language Design and Implementation (PLDI). ACM Press, 2010.

G. Xu, M. Arnold, N. Mitchell, A. Rountev, G. Sevitsky, *Go with the flow: Profiling copies to find runtime bloat*, ACM SIGPLAN Conference on Programming Language Design and Implementation (PLDI). ACM Press, 2009.

G. Xu, A. Rountev, M. Sridharan, *Scaling CFL-reachability-based points-to analysis using context-sensitive must-not-alias analysis*, European Conference on Object-Oriented Programming (ECOOP), In *Lecture Notes in Computer Science*. Springer-Verlag, 2009.

G. Xu, A. Rountev, *Merging equivalent contexts for scalable heap-cloning-based context-sensitive points-to analysis*, ACM SIGSOFT International Symposium on Software Testing and Analysis (ISSTA). ACM Press, 2008.

G. Xu, A. Rountev, *Precise memory leak detection for Java software using container profiling*, International Conference Software Engineering (ICSE). ACM Press, 2008. Best Paper Award.

G. Xu, A. Rountev, *AJANA: A general framework for source-code-level interprocedural dataflow analysis of AspectJ software*, International Conference on Aspect-Oriented Software Development (AOSD). ACM Press, 2008.

A. Rountev, M. Sharp, G. Xu, *IDE dataflow analysis in the presence of large object-oriented libraries*, International Conference on Compiler Construction (CC). Springer-Verlag, 2008.

G. Xu, A. Rountev, Y. Tang, F. Qin, *Efficient checkpointing of Java software using context-sensitive capture and replay*, ACM SIGSOFT Symposium on Foundations of Software Engineering (FSE). ACM Press, 2007.

G. Xu, A. Rountev, *Regression test selection for AspectJ software*, International Conference on Software Engineering (ICSE), IEEE Computer Society, 2007

ABET
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for
COMPUTER SCIENCE AND ENGINEERING

Appendix C – Equipment

**Donald Bren School of Information and Computer Sciences
and
The Henry Samueli School of Engineering
University of California, Irvine
Irvine, CA 92697**

June 2013

CONFIDENTIAL

The information supplied in this Self-Study Report is for the confidential use of ABET and its authorized agents, and will not be disclosed without authorization of the institution concerned, except for summary data not identifiable to a specific institution.

Below are listed the major pieces of equipment used by the program in support of instruction.

Donald Bren School of Information and Computer Sciences

General Purpose Labs:

CS364

- (60) Dell Optiplex 745 - 2.13 GHz Core 2 Duo E6400, 4GB RAM, 160GB hard drive, 17" Monitor
- (7) Dell Optiplex 755 - 3 GHz Core 2 Duo E8400, 4GB RAM, 160GB hard drive, 17" Monitor
- (20) Dell Precision 490 - 3 GHz Xeon 5160, 4GB RAM, 160GB hard drive, 17" Monitor
- (10) Networking Lab Stations – each has 4 routers, 4 switches, 4 computers
- (1) Dell OptiPlex - 2.4GHz, 512MB RAM, 40GB HD, CD Burner, 17" Monitor

CS183

- (45) Dell Optiplex 755 - 2.66 GHz Core 2 Duo E6750, 4GB RAM, 160GB hard drive, 17" Monitor

CS189

- (45) Dell Optiplex 755 - 2.66 GHz Core 2 Duo E6750, 4GB RAM, 160GB hard drive, 17" Monitor

CS192

- (40) Dell Optiplex 745 - 2.13 GHz Core 2 Duo E6400, 4GB RAM, 160GB hard drive, 19" Monitor

Senior Design Lab

A hardware/software lab has been created to support CSE 181 A-B-CW Senior Design Project. The Senior Design Lab contains the following equipment.

- 2 16801A-34 Ch, 4Ghz Timing, 250 MHz State, 1M Deep Logic Analyzer
- 2 2 Channel 60Mhz Oscilloscope
- 1 N9320A- 3 GHZ Spectrum Analyzer
- 1 N9320A-PA3 3GHZ pre-amplifier
- 1 Arbitrary Waveform Generator
- 10 Dell OptiPlex 755 Desktop computers
- 6 Dell OptiPlex 745 Desktop computers
- 16 Bench Multimeters
- 16 HI-CUR 3-14 VDC Power Supply
- 16 Function Generators
- 16 AVR JTAGICE Programmer/Debuggers
- 1 PICKit2 Programmer
- 2 Soldering Irons

The Henry Samueli School of Engineering

EH 1112 Digital Signal Processing Lab

- 6 Laptop Computers - HP ProBook 4710
2.53 GHz Intel Core2 Duo, 3 GB RAM, 120 GB HD,
256 MB ATI Radeon HD 3470 video card, 22" Monitor, Windows XP
- 6 Desktop Computers - Dell Optiplex 360
3.00 GHz Intel Core2 Duo, 3 GB RAM, 120 GB HD,
256 MB ATI Radeon HD 3470 video card, 22" Monitor, Windows XP

EH 1131 Computer Lab I

- 24 HP dc7900 - 3.00 GHz Intel Core2 Duo, 4 GB RAM, 250 GB HD, 256 MB ATI
Radeon HD 3470 video card, 22" Monitor

EH 1141 Computer Lab II

- 24 HP dc7900 - 3.00 GHz Intel Core2 Duo, 4 GB RAM, 250 GB HD, 256 MB ATI
Radeon HD 3470 video card, 22" Monitor

EH 1151 Computer Lab III

- 24 HP dc7900 - 3.00 GHz Intel Core2 Duo, 4 GB RAM, 250 GB HD, 256 MB ATI
Radeon HD 3470 video card, 22" Monitor

MSTB 224

- 50 HP dc7900 - 3.00 GHz Intel Core2 Duo, 4 GB RAM, 250 GB HD, 256 MB ATI
Radeon HD 3470 video card, 22" Monitor

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Appendix D – Institutional Summary

**Donald Bren School of Information and Computer Sciences
and
The Henry Samueli School of Engineering
University of California, Irvine
Irvine, CA 92697**

June 2013

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The information supplied in this Self-Study Report is for the confidential use of ABET and its authorized agents, and will not be disclosed without authorization of the institution concerned, except for summary data not identifiable to a specific institution.

1. The Institution

a. Name and address:

University of California, Irvine
Irvine, California 92697-2700

b. Chief Executive Officer:

Michael V. Drake, Chancellor

c. Officials submitting the self-study report:

Gregory Washington, Dean
The Henry Samueli School of Engineering
University of California, Irvine
Irvine, California 92697-2700

Hal Stern, Dean
Donald Bren School of Information and Computer Sciences
University of California, Irvine
Irvine, California 92697-3425

d. Organizations and dates of the initial and most recent accreditation evaluations:

ABET, Inc.

Date of Initial Evaluation		Date of Most Recent Evaluation
1994	Aerospace Engineering	2007
2006	Biomedical Engineering	2007
1994	Chemical Engineering	2007
1978	Civil Engineering	2007
1994	Computer Engineering	2007
2009	Computer Science and Engineering	2011
1968	Electrical Engineering	2007
1997	Environmental Engineering	2007
2003	Materials Science Engineering	2007
1978	Mechanical Engineering	2007

Western Association of Schools and Colleges (WASC)

Date of Initial Evaluation	Date of Most Recent Evaluation
May 1964 (Sept. 1965 - June 1967)	October 2012

2. Type of Control

State

3. Educational Unit

Describe the educational unit in which the program is located including the administrative chain of responsibility from the individual responsible for the program to the chief executive officer of the institution. Include names and titles. An organization chart may be included.

Undergraduate programs typically reside in academic units or departments. A Department Chair heads each of these units and is responsible for the undergraduate programs. Each Chair reports to the Dean of the School. The Deans of the Schools report to the Chancellor. An organizational chart showing Deans and other senior campus administrators of the University of California, Irvine can be found in BACKGROUND INFORMATION, section D.

The Computer Science and Engineering (CSE) program is jointly administered by the Department of Computer Science (CS) in the Donald Bren School of Information and Computer Sciences and the Department of Electrical Engineering and Computer Science (EECS) in The Henry Samueli School of Engineering. The individuals in the chain of responsibility are listed below.

Michael T. Goodrich, Chair, Department of Computer Science
Hal S. Stern, Dean of the Donald Bren School of Information and Computer Sciences

Michael M. Green, Chair, Department of Electrical Engineering and Computer Science
Gregory N. Washington, Dean of the Henry Samueli School of Engineering

Michael V. Drake, Chancellor of the University of California, Irvine

4. Academic Support Units

Below are the names and titles of the individuals responsible for each of the units that teach courses required by the Computer Science and Engineering program.

School of Biological Sciences
<http://www.bio.uci.edu/>
Albert Bennett, Dean
Michael Leon, Associate Dean of Biological Sciences

Donald Bren School of Information and Computer Sciences
<http://www.ics.uci.edu/>
Hal S. Stern, Dean
Tony Givargis, Associate Dean for Student Affairs

School of Physical Sciences
<http://www.physsci.uci.edu/>
Kenneth C. Janda, Dean
Robert J. Doedens, Interim Associate Dean of Physical Sciences

School of Social Sciences
<http://www.socsci.uci.edu/>

Bill Maurer, Dean
Caesar Sereseres, Associate Dean of Undergraduate Studies

The Henry Samueli School of Engineering
<http://www.eng.uci.edu/>
Gregory Washington, Dean
John C. LaRue, Associate Dean for Student Affairs

5. Non-academic Support Units

Below is a list the names and titles of the individuals responsible for each of the units that provide non-academic support to the program.

Non-academic Support Unit	Name & Title of Responsible Individual
Admissions & Relations with Schools	Brent Yunek, Assistant Vice Chancellor, Enrollment Services
Registrar	Elizabeth Bennett, University Registrar
Budget Office	Richard Lynch, Associate Vice Chancellor - Planning & Budget
Academic Budget	Norma Price, Director, Academic Budget
Career Center	Suzanne Helberg, Director
Library	Julia Gelfand, Applied Sciences & Engineering Librarian
Dean's Business Offices	Carol Jun, Assistant Dean, Planning and Administration (HSSoE) TBA, Assistant Dean (BREN:ICS)
Student Affairs Offices	Robin Jeffers, Director (HSSoE) Kris Bolcer, Director (BREN:ICS)
Center for Opportunities and Diversity in Engineering (CODE)	Karla Gonzalez, Student Affairs Officer (HSSoE)
Facilities	Gregory Gallardo, Facilities Manager (HSSoE) Dennis Aldridge, Facilities Manager (HSSoE) Jim Doyle, Facilities Manager (BREN:ICS)
Environmental Health & Safety (EH&S)	Christian Ritter, Safety Coordinator (HSSoE)

Computing Support

Lisa Preble, Instructional Lab Manager (HSSoE)
Bill Cohen, Director of Computing Support
(BREN:ICS)

6. Credit Unit

It is assumed that one semester or quarter credit normally represents one class hour or three laboratory hours per week. One academic year normally represents at least 28 weeks of classes, exclusive of final examinations. If other standards are used for this program, the differences should be indicated.

Academic Senate policy:

The value of a course in units shall be reckoned at the rate of one unit for three hours' work, per week, per term, on the part of a student or the equivalent.

The UCI academic year is comprised of three, ten-week terms of instruction and an 11th week set aside for final examinations. In addition to the normal three-quarter academic year, there are optional five week and ten week terms during the summer, which offer a select number of courses.

Typical course unit offerings include:

3 hours of lecture plus a one-hour discussion session per week for one quarter (3 or 4 units).

3 hours of lecture plus a laboratory or 4 hours of lecture plus a one hour discussion session per week for one quarter (4 units).

3-4 hours of lecture plus a substantial laboratory component (5 units).

7. Tables

Complete the following tables for the program undergoing evaluation.

Table D-1-f Program Enrollment and Degree Data

Computer Science and Engineering

	Academic Year	Enrollment Year					Total Undergrad	Total Grad	Degrees Awarded			
		1st	2nd	3rd	4th	5th			Associates	Bachelors	Masters	Doctorates
2012-2013	FT	28	10	16	31		85		0			
	PT	0	0	0	0		0					
2011-2012	FT	20	24	26	61		131		0	40		
	PT	0	0	0	7		7					
2010-2011	FT	24	27	44	68		163		0	44		
	PT	0	0	0	9		9					
2009-2010	FT	32	37	55	54		178		0	27		
	PT	0	1	0	8		9					
2008-2009	FT	52	55	35	73		215		0	36		
	PT	1	0	0	4		5					

Give official fall term enrollment figures (head count) for the current and preceding four academic years and undergraduate and graduate degrees conferred during each of those years. The "current" year means the academic year preceding the fall visit.

FT--full time
PT--part time

Table D-2-1a. *Personnel*

**The Henry Samueli School of Engineering
(The summary is inclusive of all departments and research units.)**

Year¹: Fall 2012

	HEAD COUNT		FTE ²
	FT	PT	
Administrative ³	1	9	1.75
Faculty (tenure-track)	117	0	111.75
Other Faculty (excluding student assistants) (Includes all academic research personnel)	63	157	77.73
Student Teaching Assistants (Includes readers)	57	51	82.04
Student Research Assistants (Includes INRF and APEP)	168	41	186.42
Technicians/Specialists (Includes INRF and APEP)	13	1	13.9
Office/Clerical Employees (Includes all staff except INRF & APEP)	67	1	67.5
Others ⁴			

Report data for the program being evaluated.

- ¹ Data on this table should be for the fall term immediately preceding the visit. Updated tables for the fall term when the ABET team is visiting are to be prepared and presented to the team when they arrive.
- ² For both student teaching and research assistants, 1 FTE equals 20 hours per week of work (or service). For undergraduate and graduate students, 1 FTE equals 15 semester credit-hours (or 24 quarter credit-hours) per term of institutional course work, meaning all courses — science, humanities and social sciences, etc. For faculty members, 1 FTE equals what your institution defines as a full-time load.
- ³ Persons holding joint administrative/faculty positions or other combined assignments should be allocated to each category according to the fraction of the appointment assigned to that category.
- ⁴ Specify any other category considered appropriate, or leave blank.

Table D-2-1b. Personnel

**Donald Bren School of Information and Computer Sciences
(The summary is inclusive of all departments.)**

Year¹: Fall 2012

	HEAD COUNT		FTE ²
	FT	PT	
Administrative ³	4	1	0.0*
Faculty (tenure-track) (Includes LSOEs, LPSOE)	68	0	68.0
Other Faculty (excluding student assistants) (Includes all academic appts not listed under tenure-track faculty)	24	30	27.05
Student Teaching Assistants (Includes readers)	70	0	70.0
Student Research Assistants (Includes GSRs)	71	3	72.48
Technicians/Specialists (Includes SRAs and Statisticians)	0	3	1.13
Office/Clerical Employees (All staff not listed under Technicians/Specialists above)	40	0	40.0
Others ⁴			

*No FTE is associated with administrative service.

Report data for the program being evaluated.

- ¹ Data on this table should be for the fall term immediately preceding the visit. Updated tables for the fall term when the ABET team is visiting are to be prepared and presented to the team when they arrive.
- ² For both student teaching and research assistants, 1 FTE equals 20 hours per week of work (or service). For undergraduate and graduate students, 1 FTE equals 15 semester credit-hours (or 24 quarter credit-hours) per term of institutional course work, meaning all courses — science, humanities and social sciences, etc. For faculty members, 1 FTE equals what your institution defines as a full-time load.
- ³ Persons holding joint administrative/faculty positions or other combined assignments should be allocated to each category according to the fraction of the appointment assigned to that category.
- ⁴ Specify any other category considered appropriate, or leave blank.

Table D-2-2a. Personnel

**The Henry Samueli School of Engineering
(Dean's Office centralized administrative unit only)**

Year¹: Fall 2012

	HEAD COUNT		FTE ²
	FT	PT	
Administrative ³	1	3	1.75
Faculty (tenure-track)	0	0	0
Other Faculty (excluding student assistants)	1	5	2.52
Student Teaching Assistants	2	0	2
Student Research Assistants	4	1	4.42
Technicians/Specialists	0	0	0
Office/Clerical Employees (Includes all staff)	42	1	42.5
Others ⁴			

Report data for the program being evaluated.

- ¹ Data on this table should be for the fall term immediately preceding the visit. Updated tables for the fall term when the ABET team is visiting are to be prepared and presented to the team when they arrive.
- ² For both student teaching and research assistants, 1 FTE equals 20 hours per week of work (or service). For undergraduate and graduate students, 1 FTE equals 15 semester credit-hours (or 24 quarter credit-hours) per term of institutional course work, meaning all courses — science, humanities and social sciences, etc. For faculty members, 1 FTE equals what your institution defines as a full-time load.
- ³ Persons holding joint administrative/faculty positions or other combined assignments should be allocated to each category according to the fraction of the appointment assigned to that category.
- ⁴ Specify any other category considered appropriate, or leave blank.

Table D-2-2b. Personnel

**Donald Bren School of Information and Computer Sciences
(Dean's Office centralized administrative unit only)**

Year¹: Fall 2012

	HEAD COUNT		FTE ²
	FT	PT	
Administrative ³	1	1	0.0*
Faculty (tenure-track)	0	0	0
Other Faculty (excluding student assistants)	0	0	0
Student Teaching Assistants	0	0	0
Student Research Assistants	0	0	0
Technicians/Specialists	0	0	0
Office/Clerical Employees (Includes staff from Dean's Office and centralized administration units)	30	0	30.0
Others ⁴			

*No FTE is associated with administrative service.

Report data for the program being evaluated.

- ¹ Data on this table should be for the fall term immediately preceding the visit. Updated tables for the fall term when the ABET team is visiting are to be prepared and presented to the team when they arrive.
- ² For both student teaching and research assistants, 1 FTE equals 20 hours per week of work (or service). For undergraduate and graduate students, 1 FTE equals 15 semester credit-hours (or 24 quarter credit-hours) per term of institutional course work, meaning all courses — science, humanities and social sciences, etc. For faculty members, 1 FTE equals what your institution defines as a full-time load.
- ³ Persons holding joint administrative/faculty positions or other combined assignments should be allocated to each category according to the fraction of the appointment assigned to that category.
- ⁴ Specify any other category considered appropriate, or leave blank.

Table D-2-3d. Personnel

Department of Computer Science

Year¹: Fall 2012

	HEAD COUNT		FTE ²
	FT	PT	
Administrative ³	1	0	0.0*
Faculty (tenure-track) (Includes LSOEs)	38	4	39.75
Other Faculty (excluding student assistants) (Includes all academic appts not listed under tenure-track faculty)	12	17	13.25
Student Teaching Assistants (Includes readers)	40	0	40.0
Student Research Assistants (Includes GSRs)	47	2	48
Technicians/Specialists	0	0	0.0
Office/Clerical Employees	5	0	5.0
Others ⁴			

* No FTE is associated with administrative service.

Report data for the program being evaluated.

- ¹ Data on this table should be for the fall term immediately preceding the visit. Updated tables for the fall term when the ABET team is visiting are to be prepared and presented to the team when they arrive.
- ² For both student teaching and research assistants, 1 FTE equals 20 hours per week of work (or service). For undergraduate and graduate students, 1 FTE equals 15 semester credit-hours (or 24 quarter credit-hours) per term of institutional course work, meaning all courses — science, humanities and social sciences, etc. For faculty members, 1 FTE equals what your institution defines as a full-time load.
- ³ Persons holding joint administrative/faculty positions or other combined assignments should be allocated to each category according to the fraction of the appointment assigned to that category.
- ⁴ Specify any other category considered appropriate, or leave blank.

Table D-2-3e. Personnel

**Department of Electrical Engineering and Computer Science
(INRF is incorporated, as it supports EECS faculty research)**

Year¹: Fall 2012

	HEAD COUNT		FTE ²
	FT	PT	
Administrative ³	0	1	0*
Faculty (tenure-track)	32	0	32
Other Faculty (excluding student assistants) (Includes academic research personnel in INRF and EECS)	5	43	9.61
Student Teaching Assistants (Includes Readers)	21	24	30.28
Student Research Assistants (Includes INRF)	23	17	33.54
Technicians/Specialists (All in INRF)	4	0	4
Office/Clerical Employees (EECS only)	6	0	6
Others ⁴			

* No FTE is associated with administrative service.

Report data for the program being evaluated.

¹ Data on this table should be for the fall term immediately preceding the visit. Updated tables for the fall term when the ABET team is visiting are to be prepared and presented to the team when they arrive.

² For both student teaching and research assistants, 1 FTE equals 20 hours per week of work (or service). For undergraduate and graduate students, 1 FTE equals 15 semester credit-hours (or 24 quarter credit-hours) per term of institutional course work, meaning all courses — science, humanities and social sciences, etc. For faculty members, 1 FTE equals what your institution defines as a full-time load.

³ Persons holding joint administrative/faculty positions or other combined assignments should be allocated to each category according to the fraction of the appointment assigned to that category.

⁴ Specify any other category considered appropriate, or leave blank.

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Appendix E – CSE Senior Survey

**Donald Bren School of Information and Computer Sciences
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The Henry Samueli School of Engineering
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Irvine, CA 92697**

June 2013

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Preview Survey

This is a preview of your survey as your participants will see it.

 or [Cancel](#)

1. Enter Responses > 2. Verify & Submit > 3. Submission Successful

Computer Science and Engineering Senior Survey (2012-2013)

[Help Contact Info](#)

Displays survey help/contact information provided at publish

Introduction

Donald Bren School of Information and Computer Science
The Henry Samueli School of Engineering
University of California, Irvine

Dear Graduating Senior,

Congratulations on your upcoming graduation with a Bachelor of Science in Computer Science and Engineering (CSE) from UC Irvine.

Please take a few minutes to give us feedback on your CSE program. Your responses are very important to us and will help identify areas that may need improvement. Thank you in advance for your time and attention to this survey.

The survey is anonymous and will not be linked in any way to your personal information. Your comments will be held in strict confidence and will only be viewed in aggregate form with the responses of other students.

Dan Hirschberg
Professor, Department of Computer Science

Fadi Kurdahi

Professor, Department of Electrical Engineering and Computer Science

Instructions

Please answer each question below. The survey is anonymous and the demographic information that you will be asked is important for us to understand the context of your input.

1. I am completing the following Track:

- Algorithms
- Artificial Intelligence
- Embedded Systems
- Graphics/Vision
- Parallel and Distributed Computing
- None

2. I am able to solve problems in computer science and engineering by applying knowledge of:

Integral calculus

- Not at all
- Somewhat
- Adequate
- Moderate
- Very Well

Discrete mathematics

- Not at all
- Somewhat
- Adequate
- Moderate
- Very Well

Linear algebra

- Not at all
- Somewhat
- Adequate
- Moderate
- Very Well

Probability

- Not at all
- Somewhat
- Adequate
- Moderate
- Very Well

Statistics

- Not at all
- Somewhat
- Adequate
- Moderate
- Very Well

Symbolic logic

- Not at all
- Somewhat
- Adequate
- Moderate
- Very Well

Physics

- Not at all
- Somewhat
- Adequate
- Moderate
- Very Well

Fundamentals of algorithms

- Not at all Somewhat Adequate Moderate
 Very Well

Data structures

- Not at all Somewhat Adequate Moderate
 Very Well

Software design

- Not at all Somewhat Adequate Moderate
 Very Well

Concepts of programming languages

- Not at all Somewhat Adequate Moderate
 Very Well

Concepts of computer organization and architecture

- Not at all Somewhat Adequate Moderate
 Very Well

Engineering

- Not at all Somewhat Adequate Moderate
 Very Well

3. I can design and conduct experiments.

- Not at all Somewhat Adequate Moderate
 Very Well

4. I can analyze and interpret data.

- Not at all Somewhat Adequate Moderate
 Very Well

5. I can **design and implement** a computer-based system, component, process, or program to meet desired needs within realistic constraints, such as:

Economic

- Not at all Somewhat Adequate Moderate
 Very Well

Environmental

- Not at all Somewhat Adequate Moderate
 Very Well

Social

- Not at all Somewhat Adequate Moderate
 Very Well

Political

- Not at all Somewhat Adequate Moderate
 Very Well

Ethical

- Not at all Somewhat Adequate Moderate
 Very Well

Health and Safety

- Not at all Somewhat Adequate Moderate
 Very Well

Manufacturability

- Not at all Somewhat Adequate Moderate
 Very Well

Sustainability

- Not at all Somewhat Adequate Moderate
 Very Well

6. I can **evaluate** a computer-based system, component, process, or program to meet desired needs within realistic constraints, such as:

Economic

- Not at all Somewhat Adequate Moderate
 Very Well

Environmental

- Not at all Somewhat Adequate Moderate
 Very Well

Social

- Not at all Somewhat Adequate Moderate
 Very Well

Political

- Not at all Somewhat Adequate Moderate
 Very Well

Ethical

- Not at all Somewhat Adequate Moderate
 Very Well

Health and Safety

- Not at all Somewhat Adequate Moderate
 Very Well

Manufacturability

Not at all Somewhat Adequate Moderate

Very Well

Sustainability

Not at all Somewhat Adequate Moderate

Very Well

7. I can function effectively on multidisciplinary teams to accomplish a common goal.

Not at all Somewhat Adequate Moderate

Very Well

8. I can identify, formulate, and solve computer science and engineering problems.

Not at all Somewhat Adequate Moderate

Very Well

9. I can analyze a computer science and engineering problem, and identify and define the computing requirements appropriate to its solution.

Not at all Somewhat Adequate Moderate

Very Well

10. I have an understanding of . . .
professional issues and responsibilities.

Not at all Somewhat Adequate Moderate

Very Well

ethical issues and responsibilities.

Not at all Somewhat Adequate Moderate

Very Well

legal issues and responsibilities.

Not at all Somewhat Adequate Moderate

Very Well

security issues and responsibilities.

Not at all Somewhat Adequate Moderate

Very Well

social issues and responsibilities.

Not at all Somewhat Adequate Moderate

Very Well

11. I can communicate effectively with a range of audiences . . .
orally.

Not at all Somewhat Adequate Moderate

Very Well

in writing.

Not at all Somewhat Adequate Moderate

Very Well

12. I understand the impact of engineering solutions in a(n) . . .
global context.

Not at all Somewhat Adequate Moderate

Very Well

economic context.

Not at all Somewhat Adequate Moderate

Very Well

environmental context.

Not at all Somewhat Adequate Moderate

Very Well

societal context.

Not at all Somewhat Adequate Moderate

Very Well

13. I can analyze the **local and global** impact of computing
solutions on individuals, organizations, and society.

Not at all Somewhat Adequate Moderate

Very Well

14. I recognize a need for, and am able to engage in continuing
professional development and life-long learning.

Not at all Somewhat Adequate Moderate

Very Well

15. I have knowledge of contemporary issues in computer science
and engineering.

Not at all Somewhat Adequate Moderate

Very Well

16. I can use current techniques, skills, and tools necessary for
engineering practice.

Not at all Somewhat Adequate Moderate

Very Well

17. I can use current techniques, skills, and tools necessary for
computing practice.

Not at all Somewhat Adequate Moderate

Very Well

18. I can apply **mathematical foundations** in the modeling and design of computer-based systems in a way that demonstrates comprehension of the tradeoffs involved in design choices.

Not at all Somewhat Adequate Moderate

Very Well

19. I can apply **algorithmic principles** in the modeling and design of computer-based systems in a way that demonstrates comprehension of the tradeoffs involved in design choices.

Not at all Somewhat Adequate Moderate

Very Well

20. I can apply **computer science theory** in the modeling and design of computer-based systems in a way that demonstrates comprehension of the tradeoffs involved in design choices.

Not at all Somewhat Adequate Moderate

Very Well

21. I can apply design and development principles in the construction of software systems of varying complexity.

Not at all Somewhat Adequate Moderate

Very Well

22. Did you participate in any of the following activities as an undergraduate at UCI? Check all that apply.

- Research project with a faculty member.
- Independent Study course (199 or the equivalent).
- Research project sponsored by UROP (Undergraduate Research Opportunities Program).
- Student chapter of a professional society, e.g. IEEE, ACM (Association for Computing Machinery), etc.
- Student chapter of a national honor society, e.g. Eta Kappa Nu, Tau Beta Pi, National Society of Collegiate Scholars.
- SPECS (Students Practicing Excellent Communication Skills) or in Toastmasters club or Speechcraft.
- CODE (Center for Opportunities & Diversity in Engineering).
- Part-time or full-time job related to computer science and engineering (CSE).
- Part-time or full-time job NOT related to computer science and engineering (CSE).

- Internship related to computer science and engineering (CSE).

23. Completed another major in

24. Completed a minor in

25. In your opinion, what are the strengths of the Computer Science and Engineering (CSE) program at UCI?

26. How could the Computer Science and Engineering (CSE) curriculum be improved?

27. Please use the following space for any additional comments you would like to make.

Closing Text

Thank you for completing the survey.

1. Enter Responses > 2. Verify & Submit > 3. Submission Successful

or [Cancel](#)

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Appendix F – Sample FCARs (Fall 2012)

**Donald Bren School of Information and Computer Sciences
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University of California, Irvine
Irvine, CA 92697**

June 2013

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FACULTY COURSE ASSESSMENT REPORT
Computer Science and Engineering 2012-13

In4matx 43 Introduction to Software Engineering

Academic Term: Fall 2012

Instructor: van der Hoek and Ziv

Student Outcome Indicators (evaluations of CSE students only):

For each student outcome indicator, identify (1) the assignment (which quiz, quiz problem, exam problem, or project) was used to assess that indicator, (2) the maximum score possible on that assignment, (3) the performance standard for that assignment expressed in points and also as a percentage of max, (4) the number of CSE students who were assessed on that assignment, (5) the average score achieved by them expressed in points and percentage of max, and (6) the number and percentage of CSE students who achieved the performance standard.

This course assesses Outcome Indicators e1, k1, k2, m1.

e1 – Students can identify, formulate, and solve engineering problems

k1 – Students can use current techniques, skills, and tools necessary for engineering practice

k2 – Students can use current techniques, skills, and tools necessary for computing practice

m1 – Students can apply design and development principles in the construction of software systems

Student Outcome Indicator	Assignm't used for assessing students	Max score avail	Performance standard score and % of Max	# of CSE students tested	Average score and % of Max	# and % of CSE students who met the standard
e1	Midterm	20	14 = 70%	17	17.9 = 90%	16 = 94%
k1	Assignment 1	30	21 = 70%	17	24.5 = 82%	15 = 88%
k2	Assignment 3	75	52.5 = 70%	17	61.3 = 82%	14 = 82%
m1	Assignment 4	100	70 = 70%	17	96.8 = 97%	16 = 94%

What changes did you make in this course based on previous assessment results?

N/A - first time taught as separate course without prerequisites.

What recommendations do you have for improving the course the next time it is taught?

1. Ensure grading gets done faster by the TAs. 2. Work out some designs in a bit more detail during the Wednesday reflective lectures. 3. Provide a bit more guidelines to the students on some of the assignments.

What recommendations do you have, if any, regarding prerequisite courses or other ways to improve student preparation for this course?

N/A - specifically designed to be taken without prerequisites.

Any other recommendations or comments?

1. For a first offering, this class went quite well. 2. Offer regularly, it is difficult to envision it scaling larger. 3. Do not schedule in the classroom where it was; wireless coverage is very poor.

FACULTY COURSE ASSESSMENT REPORT
Computer Science and Engineering 2012-13

CSE 112 Electronic Devices and Circuits

Academic Term: Fall 2012

Instructor: Lee

Student Outcome Indicators (evaluations of CSE students only):

This course assesses Outcome Indicators a1, a2, a3, b1, b2, e1, i1, k1.

a1 – Students can apply knowledge of mathematics to Computer Science and Engineering

a2 – Students can apply knowledge of science and engineering to Computer Science and Engineering

a3 – Students can apply knowledge of computing to Computer Science and Engineering

b1 – Students can design and conduct experiments

b2 – Students can analyze and interpret data

e1 – Students can identify, formulate, and solve engineering problems

i1 – Students can demonstrate an understanding of the need to engage in continuing professional development and life-long learning

k1 – Students can use current techniques, skills, and tools necessary for engineering practice

Student Outcome Indicator	Assignm't used for assessing students	Max score avail	Performance standard score and % of Max	# of CSE students tested	Average score and % of Max	# and % of CSE students who met the standard
a1	Midterm	50	37=75%	26	41.8=84%	20=75%
a2	Homework 1	100	90=90%	26	98=98%	24=92%
a3	Homework 4	100	80=80%	26	83=83%	21=81%
b1	Homework 2	100	80=80%	26	92=92%	24=92%
b2	Homework 3	100	85=85%	26	88=88%	24=92%
e1	Final	75	49=80%	25	60.5=81%	20=80%
i1						
k1	Homework 5	100	90=90%	26	81=81%	19=73%

What changes did you make in this course based on previous assessment results?

1. Start with an introduction on Diode and MOSFET device and circuits. Spend 3 weeks on diode and MOSFET DC circuits before introducing CMOS inverter. 2. The textbook (Digital IC by Rabaey et al) is far too advanced for students in this class. I would use the book by Steven Kang (Digital IC), with sections from Hambley's Intro to Electrical Engineering in the future.

What recommendations do you have for improving the course the next time it is taught?

1. If no new pre-requisites will be added in the near future, the instruction can start with simpler materials, beginning with MOSFET device characteristics and MOSFET circuits. Use a more introductory text such as the one mentioned above. 2. Improved coordination/synchronization between the HW/Lab and the lecture. 3. Remove il from the set of indicators by this course. The content in il should be covered by the instructor (I mentioned the impact of proposed immigration law that would grant Permanent Resident to all foreign higher degree holders employed in Tech industry). But il is difficult to be assessed.

What recommendations do you have, if any, regarding prerequisite courses or other ways to improve student preparation for this course?

It's too ambitious to introduce VLSI after a 10-week long EECS 70A which currently serves as the only pre-requisite. There should be at least 1 course on Electronics that introduces CMOS and CMOS circuits before tackling on VLSI.

Any other recommendations or comments?

Students are surprisingly enthusiastic about the course, more so than similar class for EE and CpE majors. I think one reason is that the small class size (26 students) enables the instructor to better hold students' attention. The teaching is helped tremendously by having a knowledgeable and experienced TA that I've had this quarter.

FACULTY COURSE ASSESSMENT REPORT
Computer Science and Engineering 2012-13

CSE 161 / CS 161 Design and Analysis of Algorithms

Academic Term: Fall 2012

Instructor: Goodrich

Student Outcome Indicators (evaluations of CSE students only):

For each student outcome indicator, identify (1) the assignment (which quiz, quiz problem, exam problem, or project) was used to assess that indicator, (2) the maximum score possible on that assignment, (3) the performance standard for that assignment expressed in points and also as a percentage of max, (4) the number of CSE students who were assessed on that assignment, (5) the average score achieved by them expressed in points and percentage of max, and (6) the number and percentage of CSE students who achieved the performance standard.

This course assesses Outcome Indicators a1, a3, e2.

a1 – Students can apply knowledge of mathematics to Computer Science and Engineering

a3 – Students can apply knowledge of computing to Computer Science and Engineering

e2 – Students can analyze a problem, and identify the computing requirements appropriate to its solution

Student Outcome Indicator	Assignm't used for assessing students	Max score avail	Performance standard score and % of Max	# of CSE students tested	Average score and % of Max	# and % of CSE students who met the standard
a1	Midterm 2 #2	50	35 = 70%	17	46 = 92%	15 = 88%
a3	Midterm 1 #2	50	35 = 70%	17	46 = 92%	15 = 88%
e2	Midterm 1 #4	50	35 = 70%	17	43 = 86%	15 = 88%

What changes did you make in this course based on previous assessment results?

I emphasized the analysis of algorithms more than in previous years.

What recommendations do you have for improving the course the next time it is taught?

I would add more motivation from real-world applications.

What recommendations do you have, if any, regarding prerequisite courses or other ways to improve student preparation for this course?

I would like to re-emphasize that the discrete mathematics course is a prerequisite for this course and that it is not advisable to issue waivers for this requirement.

Any other recommendations or comments?

In the past, I also collected data on attendance. This year I did not.

FACULTY COURSE ASSESSMENT REPORT
Computer Science and Engineering 2012-13

CSE 181A Senior Design Project

Academic Term: Fall 2012

Instructor: Bachman

Student Outcome Indicators (evaluations of CSE students only):

This course assesses Outcome Indicators f1, f2, f3, g1, h1, h2, i1, j1.

f1 – Students can demonstrate an understanding of professional and ethical issues and responsibilities

f2 – Students can demonstrate an understanding of legal and social issues and responsibilities

f3 – Students can demonstrate an understanding of security issues and responsibilities

g1 – Students can communicate effectively with a range of audiences

h1 – Students can demonstrate an understanding of the impact of engineering solutions in a global, economic, environmental, and societal context

h2 – Students can analyze the local and global impact of computing on individuals, organizations, and society

i1 – Students can demonstrate an understanding of the need to engage in continuing professional development and life-long learning

j1 – Students can demonstrate knowledge of contemporary Computer Science and Engineering issues

Student Outcome Indicator	Assignm't used for assessing students	Max score avail	Performance standard score and % of Max	# of CSE students tested	Average score and % of Max	# and % of CSE students who met the standard
f1	HW #5, case 3	2	1.4=70%	36	1.78=89%	32=89%
f2	HW #6	1.8	1.26=70%	36	1.59=89%	35=97%
f3	HW #5, case 2	2	1.4=70%	36	1.78=89%	32=89%
g1	poster	3	2.1=70%	36	2.38=79%	36=100%
h1	final report	5	3.5=70%	36	4.30=86%	36=100%
h2	HW #1	2	1.4=70%	36	1.94=97%	35=97%
i1	HW #2	2	1.4=70%	36	1.89=95%	34=94%
j1	HW #3	2	1.4=70%	36	1.86=93%	33=92%

What changes did you make in this course based on previous assessment results?

Lectures were modified to focus on teaching engineering design and project management. Assignments were chosen to meet these learning objectives. Prior lectures seemed less focused on teaching a design course, and seemed to be more about practical issues.

What recommendations do you have for improving the course the next time it is taught?

Course needs more integrated homework assignments to guide the students towards the overall objectives to teach them engineering design, project management and professionalism. Right now the homework assignments are somewhat independent of each other. I will produce a complete set of integrated assignments (later assignments build on the results of earlier assignments) that guide the students through the process to meet the learning objectives.

What recommendations do you have, if any, regarding prerequisite courses or other ways to improve student preparation for this course?

Course would benefit if students had practical training prior to taking this course. The course should focus on engineering design, project management, and professionalism through the use of a hands-on project. But students spend a lot of time learning how to do programming or use an oscilloscope. I would even be supportive of a "skills test" that should be passed before taking this course.

Any other recommendations or comments?

Skills training in the summer before this course would be very beneficial.