

# NIKIL DUTT

## Chancellor's Professor

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## AREAS OF RESEARCH

Computer systems design automation, embedded systems CAD, compilation techniques for novel architectures, high-level synthesis and high-level design languages, low-power design, distributed embedded systems, formal methods.

## EDUCATION

1989: **Ph.D.** in Computer Science, University of Illinois at Urbana-Champaign.

1983: **M.S.** in Computer Science, The Pennsylvania State University, University Park, PA.

1981: **B.E. (Honors) with Distinction** in Mechanical Engineering, Birla Institute of Technology & Science, (BITS) Pilani, India.

## ACADEMIC APPOINTMENTS

April 2009 – June 2009: **Acting Chair**, Department of Computer Science, U.C. Irvine.

November 2006 – present: **Chancellor's Professor**, Department of Computer Science and Department of Electrical Engineering and Computer Science, and **Director**, ACES Laboratory, Center for Embedded Computer Systems, U.C. Irvine

July 2003 – June 2004 : **Vice-Chair**, Division of Computer Systems, Department of Computer Science, U.C. Irvine.

January 2003 – October 2006: **Professor**, Department of Computer Science and Department of Electrical Engineering and Computer Science, and **Director**, ACES Laboratory, Center for Embedded Computer Systems, U.C. Irvine

July 1998 – December 2002: **Professor**, Department of Information and Computer Science and Department of Electrical and Computer Engineering and **Director**, ACES Laboratory, Center for Embedded Computer Systems, U.C. Irvine.

July 1997 - June 1998, and July 1999 - June 2000: **Associate Chair of Graduate Studies**, Department of Information and Computer Science, U.C. Irvine.

July 1994 - June 1998: **Associate Professor**, Department of Information and Computer Science and Department of Electrical and Computer Engineering, U.C. Irvine.

April 1990 - June 1994: **Assistant Professor**, Department of Information and Computer Science and Department of Electrical and Computer Engineering, U.C. Irvine.

July 1989 - March 1990: **Assistant Professor**, Department of Information and Computer Science, U.C. Irvine.

Jan. 1989 - June 1989: **Lecturer**, Department of Information and Computer Science, U.C. Irvine.

1983 - 1988: **Research and Teaching Assistant**, Department of Computer Science, University of Illinois at Urbana-Champaign.

1981 - 1983: **Research and Teaching Assistant**, Department of Computer Science, Pennsylvania State University, University Park, PA.

#### **RESEARCH CENTER AFFILIATIONS AT UCI**

- Center for Embedded Computer Systems (CECS)
- California Institute for Information Technology and Telecommunications (CAL-IT2)
- Center for Pervasive Communications and Computations (CPCC)
- Laboratory for Ubiquitous Computing (LUCI)

#### **AWARDS AND HONORS**

##### *Distinctions*

- **Chancellor's Professor**, University of California at Irvine, Nov 2006 – present
- **ACM Distinguished Scientist**, 2007 (20 selected out of 85,000 ACM members in 2007)
- **IEEE Fellow**, 2008 (0.1 of 1% of IEEE membership every year; 295/370,000 in 2008)

##### *Keynotes, Distinguished Lectures, Significant Invited Talks*

- **Keynote Speaker**: Commemorative Workshop inaugurating IEEE Kansai-section Computer Society Chapter, Kyoto, Japan, January 28, 2008.
- **Keynote Speaker**: ESLD Second Workshop, Bangalore, India, Jan 11-12, 2007.
- **Invited Talk**: Workshop on New Horizons in Compilers, HiPC 2006, Bangalore, India, December 18, 2006.
- **Invited Talk**: COE International Symposium on Advanced Photonic and Electronic Devices for Information and Electric Power Networks, Kyoto University, Kyoto, Japan, October 23-24, 2006.
- **Distinguished Lecture**: College of Engineering, University of Illinois at Chicago, IL, August 2006.
- **Distinguished Speaker Seminar**: ECE Department at the University of Arizona, Tucson, AZ, April 2006.
- **Distinguished Lecture**: CSE Department at Arizona State University, Tempe, AZ, October 2005.
- **Distinguished Lecture**: 25<sup>th</sup> Anniversary of the CSE Department at University of South Florida, Tampa, FL, April 2005.
- **Keynote Speaker**: DSD'2004: 30<sup>th</sup> EUROMICRO Symposium on Digital System Design: Architectures, Methods, Tools, September 2004.
- **IEEE Computer Society Distinguished Visitor Program**, 2003-2005.
- **"ACM SIGDA Distinguished Lecturer,"** 2001 ACM SIGDA Distinguished Lecturer Series in Asia.

##### *Recognition of Influential Papers*

- **"The Most Influential Papers of 10 Years of DATE"** System Level Design Track, for the paper: *"EXPRESSION: A Language for Architectural Exploration through Compiler/Simulator Retargetability,"* in DATE-99, published by Springer 2008.

- **“Best Papers from CASES and MICRO”** Recognition for the CASES 2003 paper: *“Reducing Code Size for Heterogeneous-Connectivity-Based VLIW DSPs”* published in Special Issue of IEEE Transactions on Computers, 2005, as tribute to B. Ramakrishna (Bob) Rau.

### ***Best Paper Awards***

- **“Best Paper Award,”** 2009 International Joint Conference on Neural Networks (IJCNN2009), Atlanta, GA, June 2009.
- **“Best Paper Award,”** Asia and South Pacific Design Automation Conference 2006 (ASP-DAC 2006), Yokohama, Japan, January 2006.
- **“Best Paper Award,”** 2006 IEEE Consumer Communications and Networking Conference (CCNC 2006), Las Vegas, NV, January 2006.
- **“Best Paper Award,”** First IEEE/ACM/IFIP International Conference on Hardware/Software Codesign & System Synthesis (CODES+ISSS 2003), Newport Beach, CA, October 2003.
- **“A. K. Chowdhary Best Paper Award,”** IEEE/ACM Conference on VLSI Design, New Delhi, January 2003.
- **“Best Paper Award,”** *IEEE/ACM/IFIP Tenth International Symposium on Computer Hardware Description Languages*, Marseille, France, April 1991.
- **“Best Paper Award,”** *IEEE/ACM/IFIP Ninth International Symposium on Computer Hardware Description Languages*, Washington DC, June 1989.

### ***Best Paper Award Nominations***

- **“Best Paper Award Candidate,”** 2006 International Conference on VLSI Design, Hyderabad, India, January, 2006.
- **“Best Paper Award Nomination,”** 42<sup>nd</sup> Design Automation Conference (DAC-2005), Anaheim, CA, June 2005.
- **“Best Paper Award Candidate,”** Third Workshop on Application-Specific Processors (WASP’04), Stockholm, Sweden, September 2004.

### ***Teaching Awards***

- **“2008 ICS Dean's Award for Graduate Student Mentoring,”** Donald Bren School of Information and Computer Sciences, University of California at Irvine, April 2008.
- **“2001 ICS Teaching Excellence Award,”** Senate Faculty members, Honorable Mention, University of California at Irvine, May 2001.
- **“Faculty Recognition Award for Excellence in Teaching,”** Associated Students of the University of California at Irvine (ASUCI), June 1997.
- **“Excellence in Undergraduate Teaching Award,”** The Division of Undergraduate Studies, The Instructional Resources Center and The Committee on Teaching Quality, University of California at Irvine, 1996-1997.
- **“Outstanding Teaching Assistant Award,”** University of Illinois at Urbana-Champaign, Spring 1986.

### *Academic Awards for PhD Advisees*

- **“Best System Architecture Award,”** for Ph.D. advisee Minyoung Kim, awarded at RTSS 2007 PhD Forum, Tucson, AZ, Dec. 2007.
- **“Best Overall Idea Award,”** for Ph.D. advisee Minyoung Kim, awarded at RTSS 2007 PhD Forum, Tucson, AZ, Dec. 2007.
- **“2008 ACM SIGBED/SIGSOFT Frank Anger Memorial Award,”** for Ph.D. advisee Gabor Madl, awarded at EMSOFT 2007, Salzburg, October 2007.
- **“Grand Prize: Cell/B.E. Challenge '07: Beyond Gaming!,”** for Ph.D. advisee Jayram Moorkanikara, representing UCI/Dartmouth research team in the IBM Cell Programming Competition (September 2007).
- **“2004 EDAA Outstanding Dissertation Award,”** for Ph.D. advisee Dr. Prabhat Mishra, “Specification-driven Validation of Programmable Embedded Systems,” (June 2004), currently Assistant Professor at the University of Florida.

### *Professional Service Awards*

- **“2008 SIGDA Distinguished Service Award,”** in recognition of contributions as ACM TODAES Editor in Chief and to SIGDA and the EDA profession in general.
- **“ACM Recognition of Service Award,”** In Appreciation of Contributions to the Association for Computing Machinery (ACM) for service as Editor-in-Chief, ACM TODAES, August 1, 2004 - July 31, 2008.
- **“IFIP Silver Core Award,”** For Exceptional Service to IFIP, August 2007.
- **“Special Service Award,”** For Outstanding Service on the ICCAD Executive Committee, 2004-2005.
- **“ACM SIGDA Service Award,”** In Appreciation of Contributions to ACM/SIGDA, June 2005.
- **“ACM Recognition of Service Award,”** In Appreciation of Contributions to the Association for Computing Machinery (ACM) for service as SIGDA Vice Chair, July 1 1999 - June 30, 2001.
- **“ACM Recognition of Service Award,”** In Appreciation of Contributions to the Association for Computing Machinery (ACM) for the SIGDA University Booth, July 1, 1993 - June 30, 1997.

### *Other Academic Awards*

- **“Assistant Professor Recognition,”** Rockwell International Corporation, August 1989.
- **“NSF Research Initiation Award,”** 1990 -1992.
- **“IEEE/Air Force Engineering Foundation Research Initiation Grant Offer,”** September 1990 (*declined since I was also awarded an NSF Research Initiation Award*)
- **“ACM SIGDA Honorable Mention Scholarship Award,”** 27th IEEE/ACM Design Automation Conference, Orlando, FL, June 1990.

### **PATENTS**

**PT1 US Patent Number 7,383,529:** Method and apparatus for designing circuits using high-level synthesis , R. Gupta, S. Gupta, N. Dutt and A. Nicolau, issued June 3, 2008.

**PT2 Provisional Patent Disclosure:** Systems and Methods for Simulating Instruction Set Architectures, with M. Reshadi, filed May 2004. *Full Patent Disclosure in progress.*

**PT3 Provisional Patent Disclosure:** Pipeline Hazard Detection Mechanism in Retargetable Compilers with Partial Bypassing, with A. Shrivastava, A. Nicolau, and E. Earlie, filed September 2004.

**PT4 US Patent Number 7,533,294:** Functional Coverage Driven Test Generation for Validation of Pipelined Processors, with P.Mishra, issued May 2009.

**PT5 Provisional Patent Disclosure:** Efficient Transaction-based Modeling w/ Cycle Count Accurate at Transaction Boundary (CCATB) Models, with S. Pasricha and M. BenRomdhane, filed December 2004. *Full Patent Disclosure in progress.*

**PT6 Provisional Patent Disclosure:** Automatic Identification of Application-Specific Functional Units with Architecturally Visible Storage, with P. Biswas, P. Ienne and L. Pozzi, filed December 2006. *Full Patent Disclosure in progress.*

**PT7 Provisional Patent Disclosure:** Content-Aware Power Optimizations Through Annotations for Multimedia Applications on Mobile Devices, with R. Cornea and A. Nicolau, filed January 2007.

**PT8 Provisional Patent Disclosure:** Quality-of-Service Composition and Power-Quality Tradeoffs for Streaming Applications on Portable Devices, with R. Cornea and A. Nicolau, filed January 2007.

**PT9 Provisional Patent Disclosure:** On-Chip Optical Ring Bus (ORB) Communication Architecture for Embedded Systems On Chip, with S. Pasricha, filed December 2007.

**PT10 Provisional Patent Disclosure:** Arbiter Driven SRAM Leakage Power Reduction in Bus-Based SoCsp, with A. Gupta and F. Kurdahi, filed October 2008.

**PUBLIC SOFTWARE RELEASES** <http://www.ics.uci.edu/~aces/downloads>

- **EXPRESSION ADL Environment**
  - ADL-driven exploration of pipelined embedded processors
  - GUI-driven exploration environment with an integrated simulator
- **eCACTI: enhanced cache power and performance estimation software**
  - CACTI extensions for custom memory cells and leakage power
  - CACTI 4.0 (June 2006) from HP Labs directly incorporates eCACTI extensions
- **SPARK:A Parallelizing Approach to the High-Level Synthesis of Digital Circuits**
  - Presynthesis transformations for C-to-RTL synthesis
  - Technology licensed by company

**SIGNIFICANT PROFESSIONAL SERVICE**

**Advisory Boards**

July 1993 - present: **Advisory Board**, ACM SIGDA.

July 2003 – October 2005: **Advisory Board**, ACM SIGBED.

Oct 2003 - present: **Advisory Board**, Center for Embedded Systems for Critical Applications, Virginia Tech.

Dec. 1999 – Dec. 2002: **Technical Advisory Board**, Axys Design Automation, Irvine, CA.

### Offices Held

- Publications Board, ACM, 2008 -
- Advisory Board, ACM-SIGDA, 2001-
- Advisory Board, ACM SIGBED, 2003-2005
- Advisory Board, Center for Embedded Systems for Critical Applications, Virginia Tech, 2003-
- Information Director, ACM Special Interest Group on Design Automation (SIGDA), 1998 -2001.
- Vice-Chair, ACM Special Interest Group on Design Automation (SIGDA), 1997 - 2001.
- Vice-Chair, IFIP WG 10.5 on Integrated Electronic Systems Design, 1994 -2007.
- Elected Senior Member of the IEEE, December 1996.
- Advisory Board: ACM-SIGDA (University Booth Program), 1993 - 1998.
- Elected Member: IFIP WG 10.2 on System Description and Design Tools, 1991 - .
- Kernel Group Member: IFIP Special Interest Group on VHDL (SIG-VHDL), 1994 - .

### Editorial Activity

- **Editor-in-Chief**, *ACM Transactions on Design Automation of Electronic Systems (TODAES)*, July 2004 – June 2008.
- **Transition Steering Committee**, *IEEE Embedded Systems Letters*, 2008 (Committee convened during creation of the journal)
- **Associate Editor**, *ACM Transactions on Embedded Computer Systems (TECS)*, September 2003 -.
- **Associate Editor**, *IEEE Transactions on VLSI Systems (T-VLSI)*, January 1999 – 2001, January 2007-
- **Associate Editor**, *ACM Transactions on Design Automation of Electronic Systems (TODAES)*, November 1998 – July 2004.
- **Associate Editor**, *Journal of Embedded Computing (JEC)* , Cambridge Scientific Press, 2003- .
- **Guest Editor**, *IEEE Transactions on VLSI Systems (T-VLSI) Special Issue on System-Level Synthesis*, 1999.

### Strategic Workshops

- Participant: National Science Foundation Workshop on Future Research Directions in CAD for Electronic Systems: “Putting the ‘D’ Back in CAD”, Seattle, WA, May 1996.
- Participant: National Science Foundation Workshop on *New Directions in Compiler Technology*, Anapolis, MD, August 2001.
- Participant: *NSF/SIGDA Embedded Systems Workshop*, Atlanta, GA, Nov. 2001.
- Participant: *NSF CPS Planning Workshop*, Washington DC, July 2006.
- Participant: *NSF CPS Summit*, St. Louis, April 2008.
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## Panels

- Panel Statement: “How ‘High’ is High-Level Synthesis?”, *IEEE Computer Society 1992 Workshop on VLSI*, Clearwater Beach, FL, February 2-5, 1992.
- Panel Moderator: “Physical Design Models at the Behavioral Level,” *Focused Workshop on Linking Behavioral and Physical Models of Hardware*, Irvine, CA, May 30, 1992.
- Panel Statement: “Hardware/Software Co-Design: Are there any new problems?”, *IEEE First Asia Pacific Conference on Hardware Description Languages, Standards and Applications*, Australia, December 1993.
- Panel Organizer & Moderator: “Design Reuse: Fact or Fiction?”, *31st ACM/IEEE Design Automation Conference*, San Diego, CA, June 1994.
- Panel Organizer & Moderator: “Impact of Memory Technology and Architectures on System Synthesis,” *International Symposium on System Synthesis (ISSS-97)*, Antwerp, Belgium, September 1997.
- Panel Organizer & Moderator: “If Software is King for Systems-on-Silicon, What’s New in Compilers?” *ICCD-97: International Conference on Computer Design*, Austin, TX, October 1997.
- Panel Organizer: “IP-Based Design: VIP (Very Important Process) or RIP (Rest in Peace)?” *International Symposium on System Synthesis (ISSS-98)*, Hsinchu, Taiwan, December 1998.
- Panel Organizer: “Driving Agenda for Systems Research,” *First IEEE/ACM/IFIP Conference on Hardware/Software Codesign and System Synthesis (CODES+ISSS 2003)*, Newport Beach, October 2003.
- Panel Statement: “Quo Vadis, BTSoCs (Billion Transistor Systems-on-Chip)?”, *ASPDAC-2008*, Seoul, Korea, January 2008.
- Panel Statement: “ESL Hand-off: Fact or EDA Fiction?”, *45th ACM/IEEE Design Automation Conference*, Anaheim, CA, June 2008.

## Summer School Lectures

- ACACES 2008: Fourth International Summer School on Advanced Computer Architecture and Compilation for Embedded Systems, July 13 to July 19, 2008 L'Aquila, Italy. Topic: Bus-based On-Chip Communication Architectures
- Georgia Tech Summer School on Cyber-Physical Systems, Atlanta, GA, June 22-26. Topic: Integrating End-to-End and Cross-Layer Optimizations for Cyber-Physical Systems.

## Conference Organization (Steering, Organizing, Executive, Advisory Committee)

- Steering Committee: ACM/IEEE Sixth International Symposium on High Level Synthesis, Dana Point, CA, November 1992.
- Tutorial Organizer: “High-Level Chip and System Synthesis,” *IEEE Asia-Pacific Conference on Circuits and Systems 1992 (APCCAS 92)*, December 1992.
- Steering Committee: VHDL International Users’ Forum Spring 1994 Conference, San Francisco, April 1994.
- Steering Committee: ACM/IEEE Seventh International Workshop on High Level Synthesis, Niagara-on-the-Lakes, Canada, May 1994.
- Steering Committee: Asia and South Pacific Design Automation Conference 1998 (ASP-DAC ‘98), Yokohama, Japan, February 1998.
- Organizing Committee: 11th International Symposium on System Synthesis (ISSS-98), Hsinchu, Taiwan, December 1998.

- Steering Committee: Asia and South Pacific Design Automation Conference 1999 (ASP-DAC '99), Hong Kong, January 1999.
- Steering Committee: 12th International Symposium on System Synthesis (ISSS-99), San Jose, CA, November 1999.
- Steering Committee: Asia and South Pacific Design Automation Conference 2000 (ASP-DAC 2000), Yokohama, Japan, January 2000.
- Tutorial Organizer: Embedded Memories in System Design: Technology, Application, Design and Tools, VLSI Design 2001, Bangalore, India, January 2001.
- Steering Committee: Asia and South Pacific Design Automation Conference 2001 (ASP-DAC 2001), Yokohama, Japan, January 2001.
- Executive Committee: Design, Automation, and Test in Europe 2001 (DATE 2001), Munich, Germany, March 2001.
- Steering Committee: Asia and South Pacific Design Automation Conference 2002 (ASPDAC-2002) and VLSI Design 2002, Bangalore, India, January 2002.
- Steering Committee: Asia and South Pacific Design Automation Conference 2003 (ASP-DAC 2003), Kita-Kyushu, Japan, January 2003.
- Organizing Committee: CODES+ISSS 2003, First ACM/IEEE/IFIP Conference on Hardware/Software Codesign and System Synthesis, Newport Beach, CA October 2003.
- Steering Committee: Asia and South Pacific Design Automation Conference 2004 (ASP-DAC 2004), Yokohama, Japan, January 2004.
- Organizing Committee: CODES+ISSS 2004, Second ACM/IEEE/IFIP Conference on Hardware/Software Codesign and System Synthesis, Stockholm, Sweden, September 2004.
- Advisory Committee: International SoC Design Conference (ISOCC 2004), Seoul, Korea, October 2004.
- Executive Committee: International Conference on Computer-Aided Design 2004 (ICCAD 2004), San Jose, CA, November 2004.
- Steering Committee: Asia and South Pacific Design Automation Conference 2005 (ASP-DAC 2005), Shanghai, China, January 2005.
- Organizing Committee: CODES+ISSS 2005, Third ACM/IEEE/IFIP Conference on Hardware/Software Codesign and System Synthesis, New Jersey, September 2005.
- Executive Committee: International Conference on Computer-Aided Design 2005 (ICCAD 2005), San Jose, CA, November 2005.
- Steering Committee and Tutorial Organizer: Asia and South Pacific Design Automation Conference 2006 (ASP-DAC 2006), Yokohama, Japan, January 2006.
- Organizing Committee: ESWeek 2006 and CODES+ISSS 2006, Fourth ACM/IEEE/IFIP Conference on Hardware/Software Codesign and System Synthesis, Seoul, Korea, October 2006.
- Organizing Committee: ESWeek 2007 and CODES+ISSS 2007, Fifth ACM/IEEE/IFIP Conference on Hardware/Software Codesign and System Synthesis, Salzburg, Austria, September 2006.
- Organizing Committee: Embedded Systems Week (ESWEEK) 2008, Atlanta, GA, October 2008.
- Advisory Committee: International SoC Design Conference (ISOCC) 2008, Busan, Korea, November 2008.



### Conference Chair (General, Technical Program, Topic, Panel, etc.)

- ACM/IEEE Sixth International Workshop on High Level Synthesis, Dana Point, CA, November 1992: *Benchmarks Chair*.
- Coordinator: High Level Synthesis Workshop Electronic Mailing List (1991-1995 ).
- ACM/IEEE Seventh International Symposium on High Level Synthesis, Niagara-on-the-Lakes, Canada, May 1994: *Benchmarks Chair*.
- VHDL International Users' Forum Spring 1994 Conference, San Francisco, April 1994: *Program Chair*.
- EURODAC-95: European Design Automation Conference, Brighton, U.K., September 1995: *Topic Chair*.
- ED&TC-96: European Design and Test Conference, Paris, France, March 1996: *Topic Chair*.
- IFIP Third Asia Pacific Conference on Hardware Description Languages, Standards and Applications (APCHDL 96), India, January 1996: *General Chair*.
- EURODAC-96: European Design Automation Conference, September 1996: *Topic Chair and Program Committee*.
- EURODAC-97: European Design Automation Conference, September 1997: *Topic Chair*
- EURO-PAR'97, Workshop on Design Automation of Parallel VLSI Circuits, Passau, Germany, August 1997: *Vice Program Chair*.
- DATE-98: Design Automation and Test in Europe, February 1998: *Topic Chair*.
- ISSS-98: 11th International Symposium on System Synthesis, December 1998: *Panels Chair*
- APCHDL'99: IFIP Asia Pacific Conference on Chip Description Languages, Japan, October 1999: *Tutorials Chair*
- DATE-2001: Design Automation and Test in Europe, March, 2001: *Tutorial Co-Chair*.
- ICCAD-2002: International Conference on Computer-Aided Design, San Jose, November 2001: *Topic Chair*.
- DATE-2002: Design Automation and Test in Europe, February 2002: *Topic Chair*.
- DATE-2003: Design Automation and Test in Europe, March 2003: *Topic Chair*.
- ICCAD-2003: International Conference on Computer-Aided Design, San Jose, November 2003: *Topic Chair*.
- ASPDAC-2004: Asia-Pacific Design Automation Conference, January 2004: *Technical Program Co-Chair*.
- RTSS-04: 2004 IEEE Real Time Systems Symposium, Lisbon, December 2004: *Program Chair, Track on Hardware/Software Codesign*.
- VLSI Design/ES 2005: The 18th International Conference on VLSI Design and 4th International Conference on Embedded Systems, Kolkatta, India, January 3-7 2005, *Track Co-Chair for Embedded Systems, and Program Committee*.
- DATE-2005: Design Automation and Test in Europe, March 2006: *Topic Chair*.
- ISLPED'06: International Symposium on Low-Power Electronics and Design, October 2006: *Topic Chair for Software and Systems Track*.
- CODES+ISSS 2007: ACM/IEEE/IFIP Conference on Hardware/Software Codesign and System Synthesis: *Technical Program Chair*.
- ESWEEK 2008: Embedded Systems Week, Atlanta, GA, October 2008: *General Co-Chair*.

- VLSI-DAT 2009: 2009 International Symposium on VLSI Design, Automation & Test, Hsinchu, Taiwan, April 2008: *TPC Track Chair, Embedded Systems*.
- DATE-2009: Design Automation and Test in Europe, March 2009: *Topic Co-Chair, Architectural Synthesis*.

### **Conference and Workshop Program Committees**

- IFIP Eleventh International Conference on Hardware Description Languages (CHDL 93), Ottawa, Canada, April 1993: *Program Committee*.
- IEEE First Asia Pacific Conference on Hardware Description Languages, Standards and Application, Australia 1993: *Program Committee*.
- IEEE Second Asia Pacific Conference on Hardware Description Languages, Standards and Applications, Japan 1994: *Program Committee*.
- VHDL Forum in Europe (VFE) Spring 1994 Conference, Italy 1994: *Program Committee*.
- EURODAC-94: European Design Automation Conference, Grenoble, France, September 1994: *Program Committee*.
- EDAF-94: IFIP 10.2 Working Conference on Electronic Design Frameworks, Brazil, November 1994: *Program Committee*.
- ICCAD-94: International Conference on Computer-Aided Design, Santa Clara, CA 1994: *Program Committee*.
- VHDL Forum in Europe (VFE) Fall 1994 Conference, France 1994: *Program Committee*.
- VHDL Forum in Europe (VFE) Spring 1995 Conference, France 1995: *Program Committee*.
- First IFIP/Esprit Workshop on Libraries, Component Modeling, France 1995: *Program Committee*.
- IFIP Twelfth International Conference on Hardware Description Languages (CHDL 95), Japan, August 1995: *Program Committee*.
- ISSS-95: International Symposium on System Synthesis, Cannes, France, September 1995: *Program Committee*.
- ICVC-95: 4th International Conference on VLSI and CAD, Seoul, Korea, October 1995: *Program Committee*.
- VHDL Forum in Europe (VFE) Spring 1996 Conference, Germany 1996: *Program Committee*.
- DAC-96: The 33rd Design Automation Conference, Las Vegas, NV, July 1996: *Best Paper Award Selection Committee*.
- EUROVHDL-96: European VHDL Conference, September 1996: *Program Committee*.
- ICCAD-96: International Conference on Computer-Aided Design, Santa Clara, CA 1996: *Program Committee*.
- IFIP Thirteenth International Conference on Hardware Description Languages (CHDL 97), Spain, 1997: *Program Committee*.
- Second Workshop on Libraries, Component Modeling and Quality Assurance, Toledo, Spain, April 1997: *Program Committee*.
- 23rd EUROMICRO'97, Design Automation Track: *Program Committee*.
- ISSS-97: 10th International Symposium on System Synthesis, September 1997: *Program Committee*.

- Workshop on Design, Test and Applications (WDTA'98), Dubrovnik, Croatia, June 1998: *Program Committee.*
- Forum on Design Languages (FDL-98), Switzerland, September 1998: *Program Committee.*
- EUROMICRO Workshop on Digital System Design: Architectures, Methods and Tools, Sweden, September 1998: *Program Committee.*
- APCHDL'98: IFIP Fifth Asia Pacific Conference on Hardware Description Languages, Korea, July 1998: *Program Committee.*
- SASIMI'98: Workshop on Synthesis and Simulation of Mixed Technologies, Sendai, Japan, October 1998: *Program Committee.*
- ISSS-98: 11th International Symposium on System Synthesis, December 1998: *Program Committee.*
- DATE-99: Design Automation and Test in Europe, March 1999: *Program Committee.*
- Workshop on Design, Test and Applications (WDTA'99), Dubrovnik, Croatia, June 1999: *Program Committee.*
- EUROMICRO Workshop on Digital System Design: Architectures, Methods and Tools, Milan, Italy September 1999: *Program Committee.*
- Forum on Design Languages (FDL-99), France, September 1999: *Program Committee.*
- APCHDL'99: IFIP Asia Pacific Conference on Chip Description Languages, Japan, October 1999: *Program Committee.*
- ISSS-99: 12th International Symposium on System Synthesis, November 1999: *ICCAD Liaison and Program Committee.*
- DSVV'2000: 2000 International Workshop on Distributed System Validation and Verification (DSVV'2000), Taipei, Taiwan, ROC, April 10-13, 2000: *Program Committee.*
- ICDA2000: International Conference on Chip Design Automation, Beijing, China, August 2000: *Program Committee for APCHDL2000 track.*
- ISSS-2000: 13th International Symposium on System Synthesis, September 2000: *Program Committee.*
- IMS-2000: The 2nd Workshop on Intelligent Memory Systems, in conjunction with ASPLOS-IX, Boston Massachusetts, November 12, 2000: *Program Committee.*
- ISSS-2001: 14th International Symposium on System Synthesis, September 2001: *Program Committee.*
- ICCAD-2001: International Conference on Computer-Aided Design, San Jose, November 2001: *Program Committee.*
- IFIP VLSI-SOC 2001: IFIP International Conference on Very Large Scale Integration, Montpellier, France, December, 2001: *Program Committee.*
- ISSS-2002: 15th International Symposium on System Synthesis, October 2002: *Program Committee.*
- WASP-2002: First Workshop on Application Specific Processors, November 2002: *Program Committee.*
- ASPDAC-2003: Asia-Pacific Design Automation Conference, January 2003: *Program Committee.*
- LCTES-2003: Conference on Languages, Compilers and Tools for Embedded Systems, June 2003: *Program Committee.*
- MDES/RTAS 2003: Workshop on Model Driven Embedded Systems at the Real Time and Applications Symposium, Washington DC, July 2003: *Program Committee.*
- ISLPED'03: International Symposium on Low-Power Electronics and Design, August 2003: *Program Committee.*

- CODES+ISSS 2003: First ACM/IEEE/IFIP Conference on Hardware/Software Codesign and System Synthesis, October 2003: *Program Committee.*
- COLP-03: Workshop on Compilers and Operating Systems for Low Power, held at PACT'03, September 2003: *Program Committee.*
- DSD'2003: EUROMICRO Symposium on Digital System Design: Architectures, Methods, Tools, September 2003: *Program Committee.*
- CTCES 2003: Workshop on Compilers and Tools for Constrained Embedded Systems, Held at CASES-2003, October 2003: *Program Committee.*
- WASP-2003: Second Workshop on Application Specific Processors, December 2003: *Program Committee.*
- IFIP VLSI-SOC 2003: IFIP International Conference on Very Large Scale Integration, December 2003: *Program Committee.*
- DATE-2004: Design Automation and Test in Europe, Feb 2004: *Program Committee.*
- ISLPED'04: International Symposium on Low-Power Electronics and Design, Irvine, August 2004: *Program Committee.*
- DSD'2004: EUROMICRO Symposium on Digital System Design: Architectures, Methods, Tools, September 2004: *Program Committee.*
- HiPC'04: *Program Committee.*
- SCOPES'04: Software and Compilers for Embedded Systems, Amsterdam, September 2004, *Program Committee.*
- CASES'04: Compilers, Architectures and Software for Embedded Systems, Washington DC, September 2004, *Program Committee.*
- MoDES/RTAS 2004: Workshop on Model Driven Embedded Systems at the Real Time and Applications Symposium, Toronto, Canada, July 2004: *Program Committee.*
- CTCES 2004: Workshop on Compilers and Tools for Constrained Embedded Systems, Held at CASES-2004, October 2004: *Program Committee.*
- CODES+ISSS 2004: ACM/IEEE/IFIP Conference on Hardware/Software Codesign and System Synthesis, September 2004: *Program Committee.*
- DSD'2004: EUROMICRO Symposium on Digital System Design: Architectures, Methods, Tools, September 2004: *Program Committee.*
- WASP-2004: Third Workshop on Application Specific Processors, September 2004: *Program Committee.*
- SASIMI-2004: The 12th Workshop on Synthesis And System Integration of Mixed Information Technologies, Kanazawa, Japan, Oct. 2004 *Program Committee.*
- EUC-2004: International Conference on Embedded and Ubiquitous Computing (EUC-04) August 26-28, 2004, Aizu, Japan, *Program Committee.*
- SASIMI-2004: The 12th Workshop on Synthesis And System Integration of Mixed Information Technologies, Kanazawa, Japan, Oct. 2004 *Program Committee.*
- ART-C 2004: Architectures for Real-Time Computing, December 2004: *Program Committee.*
- ICES2004: The First International Conference on Embedded Software and Systems, Zhejiang University, PRC, December 2004: *Program Committee.*
- VLSI Design/ES 2005: The 18th International Conference on VLSI Design and 4th International Conference on Embedded Systems, Kolkatta, India, January 3-7 2005, *Track Co-Chair for Embedded Systems, and Program Committee.*

- RTAS 2005: The 11th IEEE Real-Time and Embedded Technology and Applications, March 2005: *Program Committee.*
- DATE-2005: Design Automation and Test in Europe, March 2005: *Program Committee.*
- IESS2005: The International Embedded System Symposium, Manaus, Brazil, August 2005: *Program Committee.*
- ISLPED'05: International Symposium on Low-Power Electronics and Design, San Diego, August 2005: *Program Committee.*
- DSD'2005: EUROMICRO Symposium on Digital System Design: Architectures, Methods, Tools, September 2005: *Program Committee*
- SBCCI 2005: 18th Symposium on Integrated Circuits and System Design: September 2005: *Program Committee.*
- CODES+ISSS 2005: ACM/IEEE/IFIP Conference on Hardware/Software Codesign and System Synthesis, September 2005: *Program Committee.*
- CASES'05: Compilers, Architectures and Software for Embedded Systems, San Francisco, September 2005, *Program Committee.*
- RTSS-05: 2005 IEEE Real Time Systems Symposium, Miami, FL, December 2005: *Program Committee.*
- EUC-2005: International Conference on Embedded and Ubiquitous Computing (EUC-04) December 6-9, 2005, Nagasaki, Japan, *Program Committee.*
- SASIMI 2006: Workshop on Synthesis and Simulation of Mixed Technologies, Nagoya, Japan, April 2006: *Program Committee.*
- DATE-2006: Design Automation and Test in Europe, March 2006: *Program Committee.*
- RTAS 2006: The 12th IEEE Real-Time and Embedded Technology and Applications, March 2006: *Program Committee.*
- SAMOS VI: Embedded Computer Systems: Architectures, Modeling and Synthesis, July 2005: *Program Committee.*
- ALPS 2006: International Workshop on Advanced Low Power Systems: June 2006: *Program Committee.*
- DIPES 2006: IFIP Conference on Distributed and Parallel Embedded Systems: *Program Committee.*
- ISLPED'06: International Symposium on Low-Power Electronics and Design, October 2006: *Program Committee.*
- ESTIMEDIA'06: Workshop on Embedded Systems for Real-Time Multimedia, Seoul. Korea, October 2006, *Program Committee.*
- SCOPES'06: Software and Compilers for Embedded Systems, Seoul. Korea, October 2006, *Program Committee.*
- SBCCI 2006: 19th Symposium on Integrated Circuits and System Design: September 2006: *Program Committee.*
- Low Power Computing Workshop at ICS-2006, Cairns, Australia, July 2006: *Program Committee.*
- RTSS-06: 2006 IEEE Real Time Systems Symposium, Sao Paolo, Brazil, December 2006: *Program Committee.*
- HiPEAC 2007: 2007 International Conference on High Performance Embedded Architectures & Compilers, Ghent, BELGIUM, January 29-30, 2007: *Program Committee.*
- ICFPT'06: IEEE International Conference on Field Programmable Technology December 13-15, 2006, Bangkok Thailand: *Program Committee.*

- NSF Workshop on CPS, October 15-16, 2006, Austin, TX: *Program Committee*.
- ASPDAC-2007: Asia-Pacific Design Automation Conference, January 2007: *Program Committee*.
- LCTES-2007: Conference on Languages, Compilers and Tools for Embedded Systems, June 2007: *Program Committee*.
- DATE-2007: Design Automation and Test in Europe, March 2007: *Program Committee*.
- RTAS 2007: The 13th IEEE Real-Time and Embedded Technology and Applications, March 2007: *Program Committee*.
- SBCCI 2007: 20th Symposium on Integrated Circuits and System Design: September 2007: *Program Committee*.
- ALPS 2007: International Workshop on Advanced Low Power Systems: June 2007: *Program Committee*.
- SASIMI 2007: Workshop on Synthesis and Simulation of Mixed Technologies, Hokkaido, Japan, October 2007: *Program Committee*.
- ESTIMEDIA'07: Workshop on Embedded Systems for Real-Time Multimedia, Salzburg, Austria, October 2007, *Program Committee*.
- WASP-2007: Workshop on Application Specific Processors, Salzburg, Austria, October 2007: *Program Committee*.
- MTV-2007: 8<sup>th</sup> International Workshop on Microprocessor Testing and Verification), Austin, TX, December 2007: *Program Committee*.
- ASPDAC-2008: Asia-Pacific Design Automation Conference, January 2008: *Program Committee*.
- VLSI Design/ES 2008: The 21st International Conference on VLSI Design and 7th International Conference on Embedded Systems, Hyderabad, India, January 2008: *Program Committee*.
- RTAS 2008: The 14th IEEE Real-Time and Embedded Technology and Applications, March 2008: *Program Committee*.
- SCOPES'08: Software and Compilers for Embedded Systems, Munich, Germany, March 2008, *Program Committee*.
- SASP-2008: Symposium on Application Specific Processors, Anaheim, CA, June 2008: *Program Committee*.
- WoWMoM 2008: IEEE International Symposium on a World of Wireless Mobile and Multimedia Networks, Newport Beach, CA June 2008: *Program Committee*.
- DSD'2008: EUROMICRO Symposium on Digital System Design: Architectures, Methods, Tools, September 2008: *Program Committee*.
- DIPES 2008: IFIP Conference on Distributed and Parallel Embedded Systems, September 2008: *Program Committee*.
- ESTIMEDIA'08: Workshop on Embedded Systems for Real-Time Multimedia, Atlanta, GA, October 2008, *Program Committee*.
- EMSOFT 2008: 8th Annual ACM Conference on Embedded Software, Atlanta, Georgia, October 2008: *Program Committee*.
- VLSI Design/ES 2009: The 22nd International Conference on VLSI Design and 8th International Conference on Embedded Systems, New Delhi, India, January 5-9, 2009, *Program Committee*.
- ASPDAC-2009: Asia-Pacific Design Automation Conference, January 2009: *Program Committee*.
- SCOPES'09: Software and Compilers for Embedded Systems, Nice, France, April 2009, *Program Committee*.

- DATE-2009: Design Automation and Test in Europe, April 2009: *Track Co-Chair and Program Committee.*
- VLSI-DAT 2009: International Symposium on VLSI Design, Automation and Test, Hsinchu, April 2009: *Track Co-Chair and Program Committee.*
- DSD'20094: EUROMICRO Conference on Digital System Design: Architectures, Methods, Tools, August 2009: *Program Committee.*
- SASIMI 2009: Workshop on Synthesis and Simulation of Mixed Technologies, Okinawa, Japan, March 2009: *Program Committee.*
- WoWMoM 2009: IEEE International Symposium on a World of Wireless Mobile and Multimedia Networks, Newport Beach, CA June 2009: *Program Committee.*
- ASC 2009: APSIPA Annual Summit and Conference 2009, Sapporo, Hokkaido, Japan, October 5 - 7 2009: *Program Committee.*
- IC-SAMOS 2009: International Conference on Embedded Computer Systems: Architectures, Modeling, and Simulation, Samos, Greece, July 20-23, 2009: *Program Committee.*
- RTAS 2009: The 15th IEEE Real-Time and Embedded Technology and Applications, March 2009: *Program Committee.*
- ISLPED 2009: International Symposium on Low-Power Electronics and Design, October 2009: *Program Committee.*
- FPL 2009: 2009 Conference on Field Programmable Logic (FPL 2009), August 2009: *Program Committee.*
- EMSOFT 2009: 9th Annual ACM Conference on Embedded Software, Atlanta, Georgia, October 2008: *Program Committee.*
- ESTIMedia 2009: Workshop on Embedded Systems for Real-Time Multimedia, October 2009, *Program Committee.*
- RTSS 2009: 2009 IEEE Real Time Systems Symposium, December 2009: *Program Committee.*

## **Reviewer**

### *Research Proposals :*

- NSF (1988 - ).
- University of California MICRO (1991 - ).
- Board of Regents Research Committee, State of Louisiana (1992).
- California Space Institute, University of California, San Diego (1993).
- NSF SBIR Panel (1995 - ).
- NSF CCR/DA Program Review Panel (1999-).
- NSF ITR Program Review Panel (2000-).
- Swedish Research Council (2003)
- Hong Kong Research Council (1997-)
- Australian National Research Council (1998-)
- Canadian National Science and Engineering Research Council (NSERC) (2003-)

### *Journals :*

- Proceedings of the IEEE (1987).

- IEEE Trans. Computer Aided Design of Integrated Circuits and Systems (1989 - ).
- IEEE Trans. Circuits and Systems (1991 - ).
- IEEE Trans. on VLSI Systems (1992 - ).
- IEEE Design and Test of Computers (1991 - ).
- Integration, The VLSI Journal (1991 - ).
- VLSI Design, (1993).
- Brazilian Journal of Electronics, (1995).
- ACM Trans. on Design Automation of Electronic Systems (1995 - ).
- Design Automation for Embedded Systems (1996 - ).
- ACM Trans. On Code Optimizations (TACO) (2004-).

*Premier Conferences and Workshops :*

- IEEE/ACM Design Automation Conference (1987 - ) .
- IEEE/ACM International Symposium on Computer Architecture (1988 - ).
- IEEE International Conference on Computer-Aided Design (1987 - ).
- IEEE Custom Integrated Circuits Conference (1987).
- IFIP Applied Formal Methods for Correct VLSI Design (1989).
- IFIP Computer Hardware Description Languages and their Applications (1990 - ).
- IEEE/ACM High-Level Synthesis Workshop (1990 - ).
- International Computer Symposium (1992).
- International Symposium on VLSI Design (1991 - ).
- International Conference on Parallel Processing (ICPP) (1993 - ).
- European Conference on Design Automation with EuroVHDL (EURO-DAC) (1992 - ).
- European Design Automation Conference (EDAC) (now DATE) (1991-1997).
- Design and Test in Europe Conference (DATE) (1998-).
- Real-Time Systems Symposium (RTSS) (2003-).

*Professional Association Memberships*

- IEEE (Computer Society, CAS Society, DATC, TC VLSI, TC Computer Architecture).
- ACM-SIGDA. (Special Interest Group on Design Automation)
- ACM-SIGBED (Special Interest Group on Embedded Systems)
- IFIP WG 10.5.
- IFIP WG 10.2 (Embedded Systems)

**Ph.D. ADVISEES (Chair)**

Pradip Jha,  
Roger Ang,

*High-Level Library Mapping for RT Components*, October 1995.

*Library Insertion and Reuse of Datapath Components in High-Level Synthesis*, June 1996.



Preeti Panda, *Memory Optimizations and Exploration for Embedded Systems*, January 1998.  
Peter Grün, *Hardware/Software Memory Customization for Programmable Embedded Systems*, Sept. 2001.  
Prabhat Mishra, *Specification-driven Validation of Programmable Embedded Systems*, March 2004.  
**(Winner of 2004 EDAA Outstanding Dissertation Award)**  
Mahesh Naga Mamidipaka, *Power Estimation in High-Performance Memory Structures*, October 2004.  
Partha Biswas *Acceleration beyond Memory Barriers in IS-extensible Processors*, March 2006.  
Aviral Shrivastava *Compiler-in-the-Loop Exploration of Programmable Embedded Systems*, June 2006  
Nick Savoio *Design Transformations for System Level Models*, (Rajesh Gupta, coadvisor), Sept 2006.  
Sudarshan Banerjee *Application mapping for FPGAs with Partial Dynamic Reconfiguration*, March 2007.  
Ilya Issenin *Multiprocessor System-on-Chip Data Memory Customization for Embedded Array-Intensive Applications*, March 2007.  
Sudeep Pasricha *On-Chip Communication Architecture Synthesis for Multi-Processor System-on-Chips*, June 2008.  
Minyoung Kim *xTune: A Formal Methodology for Cross-layer Tuning of Mobile Real-time Embedded Systems*, September 2008.  
Kyoungwoo Lee *Cooperative Cross-Layer Protection for Resource Constrained Mobile Multimedia Systems*, December 2008.  
Gabor Madl *Model-based Analysis of Event-driven Distributed Real-time Embedded Systems*, June 2009.  
Ashok Halambi *TransMutations: A framework for dynamic customization of retargetable compilers for embedded systems*, June 2009.  
Aseem Gupta *Temperature Aware VLSI Design for Reduced Power and Reliability Enhancement*, June 2009.

Luis Angel Bathen  
Jayram Moorkanikara  
Arup Chakraborty  
Kazuyuki Tanimura

#### **Ph.D. ADVISEES (Committee Member)**

Joseph Lis (1991)  
John Roy (1991)  
Allen C-H Wu (1992)  
Elke Rundensteiner (1992)  
James H. Kim (1992)  
Hung Huang (1993)  
Yulin Chen (1993)  
Haigeng Wang (1993)  
Champaka Ramachandran (1994)  
Sanjiv Narayan (1994)  
Frank Vahid (1994)  
Loganath Ramachandran (1994)  
Tsong-Der Har (1994)  
Jie Gong (1995)  
Patrick Murphy (1996)  
Smita Bakshi (1996)  
Steven Wallace (1996)  
Bjarne Hald (*External Ph.D. Examiner at TU Denmark, Lyngby*, 1997)  
Steven Novack (1997)  
Erica Hsiao-Ping Juan (1997)  
Min Xu (1997)  
Chih-Wen Hseuh (1997)  
David Kolson (1998)  
Prasert Kanthamanon (*External Ph.D. Examiner for University of New South Wales*, 1998)  
Fehmina Merchant (1998)  
Jianwen Zhu (1999)

Nong Fan (2000)  
Hartej Singh (2000)  
Eugene Gendelman (2001)  
Ana Azevedo (2002)  
Sumit Gupta (2003)  
Jong-eun Lee (Seoul National University, 2004)  
Radoslaw Szymanek (*“Opponent” for Ph.D. Examination at Lund University, Sweden, 2004*)  
Weiyu Tang (2004)  
Paolo D’Alberto (2005)  
Jinfeng Liu (2005)  
Dan Nicolaescu (2005)  
Efe Yardimci (2006)  
Manish Verma (*External Ph.D. Examiner for University of Dortmund, 2006*)  
Dexin Li (2006)  
Andrew Felch (2006)  
Iosif Lazaridis (2006)  
Andreas Gal (2006)  
Radu Cornea (2007)  
Qubo Hu (*External Ph.D. Examiner for Norwegian University of Science and Technology, 2007*)  
Andre Nacul (2007)  
Vasant Venkatachalam (2007)  
Chulsung Park (2007)  
K. N. Vikram (*External Ph.D. Examiner for Indian Institute of Technology, Madras, India, 2007*)  
Arijit Ghosh (2008)  
Yun Huang (2008)  
T. S. Rajesh Kumar (*External Ph.D. Examiner for Indian Institute of Science, Bangalore, India, 2008*)  
Love Singhal (2009)  
Younghwan Park (2009)  
Sahasrabudde Sameer D. (*External Ph.D. Examiner for Indian Institute of Science, Bombay, India, 2009*)  
Lei Wang (2009)

## **Ph.D. CANDIDACY COMMITTEES**

Arthur Reyes (ICS Ph.D. Candidacy Exam, 1996)  
Simin Shoari (ECE Ph.D. Candidacy Exam, 1997)  
Susan Mabry (ICS Ph.D. Candidacy Exam, 1997)  
Ashok Halambi (ICS Ph.D. Candidacy Exam, June 1998)  
Peter Grün (ICS Ph.D. Candidacy Exam, June 1998)  
Alberto Nannarelli (ECE Ph.D. Candidacy Exam, 1998)  
Hartej Singh (ECE Ph.D. Candidacy Exam, June 1998)  
Jianwen Zhu (ICS Ph.D. Candidacy Exam, June 1998)  
M. Srinivas (ICS Ph.D. Candidacy Exam, March 1999)  
G. Lu (ECE Ph.D. Candidacy Exam, July 1999)  
Andreas Gerstlauer (ICS Ph.D. Candidacy Exam, July 1999)  
Dinesh Ramanathan (ICS Ph.D. Candidacy Exam, August 1999)  
Shuqing Zhao (ICS Ph.D. Candidacy Exam, July 1999)  
Ana Azevedo (ICS Ph.D. Candidacy Exam, September 1999)  
Nick Savoie (ICS Ph.D. Candidacy Exam, September 1999)  
Weiyu Tang (ICS Ph.D. Candidacy Exam, August 2000)  
Sumit Gupta (ICS Ph.D. Candidacy Exam, August 2000)  
Prabhat Mishra (ICS Ph.D. Candidacy Exam, March 2001)  
Mahesh Mamidipaka (ICS Ph.D. Candidacy Exam, June 2001)  
Dongwan Shin (ICS Ph.D. Candidacy Exam, Sept. 2001)  
John Xie (ICS Ph.D. Candidacy Exam, Sept. 2001)  
Pei Zhang (ICS Ph.D. Candidacy Exam, Sept. 2001)

Lukai Cai (ICS Ph.D. Candidacy Exam, Sept. 2001)  
Samar Abdi (ICS Ph.D. Candidacy Exam, 9/02)  
Partha Biswas (ICS Ph.D. Candidacy Exam, 9/02)  
Aviral Shrivastava (ICS Ph.D. Candidacy Exam, 9/02)  
Ilya Issenin (ICS Ph.D. Candidacy Exam, 9/02)  
Jinfeng Liu (EECS Ph.D. Candidacy Exam, 3/03)  
Dexin Li (EECS Ph.D. Candidacy Exam, 5/03)  
Radu Cornea (ICS Ph.D. Candidacy Exam, 9/03)  
Shivajit Mohapatra (ICS Ph.D. Candidacy Exam, Sept. 2003)  
John Augustine (ICS Ph.D. Candidacy Exam, Sept. 2003)  
Vasant Venkatachalam (ICS Ph.D. Candidacy Exam, Sept. 2003)  
Efe Yardimeci (ICS Ph.D. Candidacy Exam, 11/03)  
Andreas Gal (ICS Ph.D. Candidacy Exam, Dec. 2003)  
Yun Huang (ICS Ph.D. Candidacy Exam, March 2004)  
Sudeep Pasricha (ICS Ph.D. Candidacy Exam, March 2004)  
Iosif Lazaridis (ICS Ph.D. Candidacy Exam, March 2004)  
Andre Nacul (ICS Ph.D. Candidacy Exam, May 2004)  
Sudarshan Banerjee (ICS Ph.D. Candidacy Exam, August 2004)  
Donghua Deng (EECS Ph.D. Candidacy Exam, Sept. 2004)  
Lei Wang (ICS Ph.D. Candidacy Exam, Sept. 2004)  
Arijit Ghosh (ICS Ph.D. Candidacy Exam, Sept. 2004)  
Paolo D'Alberto (ICS Ph.D. Candidacy Exam, Oct.. 2004)  
Keun Sik No (EECS Candidacy Exam, Dec. 2004)  
Ji Young Park (Civil Engineering Candidacy Exam, Dec. 2004)  
Ying Zhang (EECS Candidacy Exam, Jan 2005)  
Mohammad Ghodrat (ICS Ph.D. Candidacy Exam, March 2005)  
Ann Gordon Ross (UCR/CS Ph.D. Qualifying/Candidacy Exam, March 2005)  
Greg Stitt (UCR/CS Ph.D. Qualifying/Candidacy Exam, March 2005)  
Minyoung Kim (ICS Ph.D. Candidacy Exam, March 2005)  
Kyoungwoo Lee (ICS Ph.D. Candidacy Exam, March 2005)  
Dan Nicolaescu (ICS Ph.D. Candidacy Exam, April 2005)  
Amir Safarian (EECS Qualifying Exam, Sept. 2005)  
Aseem Gupta (EECS Qualifying Exam, Sept. 2005)  
Chulsung Park (EECS Qualifying Exam, Dec. 2005)  
Jun Ho Ban (EECS Qualifying Exam, Dec. 2005)  
Bo Xing (ICS Ph.D. Candidacy Exam, April 2005)  
Radha Guha (EECS Qualifying Exam, Jan. 2006)  
Amin Shameli (EECS Qualifying Exam, March 2006)  
Andrew Felch (ICS Ph.D. Candidacy Exam, June 2006)  
Love Singhal (ICS Ph.D. Candidacy Exam, June 2006)  
Gabor Madl (ICS Ph.D. Candidacy Exam, September 2006)  
Jayram Moorkanikara (CS Ph.D. Candidacy Exam, November 2006)  
Carmen Badea (CS Ph.D. Candidacy Exam, December 2006)  
Stanley Chih-Yang Chen (EECS Qualifying Exam, October 2007)  
Inchul Yang (CEE Qualifying Exam, December 2007)  
Arup Chakraborty (CS Ph.D. Candidacy Exam, August 2008)  
Patti Lee (CS Ph.D. Candidacy Exam, October 2008)  
Gregor Wagner (CS Ph.D. Candidacy Exam, June 2009)

#### **Faculty Mentorship Program Advisees**

Roger P. Ang, 1993-1994

Rafael Lopez 2003-2004.

### **M.S. Advisees**

Indraneel Ghosh, *High-Level Modeling of Standard Parts in VHDL*, ECE M.S. Thesis, June 1992.  
Asheesh Khare, *SIMPRESS: A Simulator Generator Environment for Systems-on-Chip Exploration*, ICS M.S. Thesis, September 1999.  
Shannon Tauro, April 2003.  
Daniel Massaguer, EECS M.S. Thesis, Winter 2005.  
Jesse Dannenbring, EECS M.S.

### **M.S. Advisees (as a Committee Member)**

Rajesh Gupta (1990)  
Champaka Ramachandran (1990)  
Erik Jessen (1991)  
Sharon Yu (1992)  
David Lee (1992)  
Jian Li (1993)  
Reynold Leong (1993)  
Nirav Dagli (1994)  
Lata Ganesan (1995)  
Alberto Nannarelli (1995)  
Mat Loikkanen (1995)  
Joao Lacerda (1996)  
Poonam Agrawal (1996)  
Zhuzhen Kang (1997)  
Hartej Singh (1997)  
Wenwei Pan (1997)  
Ming-Hau Lee (1997)  
Hung-Kang Liu (1997)  
Farzad Etemadi (1997)  
Yang Zhang (1997)  
Joseph J. Balardeta (1998)  
Mark Pontius (1998)  
Ruiwei Wang (1998)  
Tsen-Yi Lin (2001)  
Devyani Sharma (2006)  
Jae Young Lee (2008)

### **Faculty Visitors Hosted**

Sri Parameswaran, University of Queensland, Australia, December 1993 - May 1994.  
Hiroshi Nakamura, Tsukuba University, Japan, March 1996 - January 1997.  
Hee Seok Kim, Chong Ju University, Korea, August 1996 - August 1997.  
Anupam Basu, Indian Institute of Technology, Kharagpur, India, March 1998 - August 1999.  
Jong Kwon Chang, Ulsan University, Korea, January 2000 - January 2001.  
Frederic Rousseau, University of Grenoble, France, May 2000 - September 2000.  
Kitae Hwang, Hansung University, Korea, September 2000 - August 2001.  
Kiyong Choi, Seoul National University, December 2001 - December 2002.  
Wonyong Sung, Seoul National University, January 2004-December 2004.  
Per Gunnar Kjeldsberg, Norwegian University of Science and Technology, October 2005-June 2006.  
Yun-Seok Nam, Korea Poytechnic University, January 2006-December 2006.  
Yoshinori Takeuchi, Osaka University, September 2006-April 2007  
Oh-Young Kwon, Korea University of Technology and Education, Jan-Dec 2007  
Hoon Chang, Korea Sep 07-Sep 08

Namyun Kim, Hansung University, Jan 08-Feb 08  
Ing-Jer Huang, National Sun-Yat Sen University, August 2008 – June 2009.  
Kiyong Choi, Seoul National University, February 2009 – June 2009.

### **Post-Doctoral Scholars Supervised**

Dan Brahme, December 1991 - 1993.  
Robert Carden, June 1991 - 1993.  
Seong Yong Ohm (jointly with F. Kurdahi), September 1993 - September 1995.  
Marie-Lise Flottes (jointly with D. Gajski), July 1994 - July 1995.  
Hiroyuki Tomiyama, March 1999 - March 2001.  
Sumit Gupta, July 2003 – March 2004.  
Hyun-Ok Oh, September 2003 – March 2005.  
Prabhat Mishra, April 2004-July 2004.  
Yongjin Ahn, October 2008-

### **Doctoral Student Visitors Supervised**

Jongun Lee, Seoul National University, January 2002 – May 2003.  
Sunghyun Lee, Seoul National University, September 2003 – September 2004.  
Jaewon Seo, Korean Advanced Institute of Science and Technology (KAIST), April 2004-April 2005.  
Kisun You, Seoul National University, December 2004 – December 2005.  
Sanghyun Park, Seoul National University, June-September 2005.  
Ameet Patil, January-April 2006.  
Doosan Cho, Seoul National University, December – February 2007 and July – September 2007.  
Chun Hung Lai, NSYSU Taiwan, August 2008 – August 2009.  
Fu-Ching Yang, NSYSU Taiwan, August 2008 – August 2009.  
Liang-Bi Chen, NSYSU Taiwan, August 2008 – August 2009.  
Manhwee Jo, Seoul National University, Feb 2009 – July 2009.  
Ganghee Lee, Seoul National University, Feb 2009 – July 2009.

### **Industrial Visitors Hosted**

Taisei Yoshino, Hitachi Corporation, September 1999 - September 2000.  
Yohei Akita, Hitachi Corporation, July 2003 – July 2004.  
Qiang Zhu, Fujitsu Laboratories Inc., August 2005-August 2006.  
Isao Watanabe, Hitachi Corporation, September 2006 - September 2007.  
Shinichi Shibahara, Renesas Technology Corporation Sep 07-Aug08  
Takashi Takenaka, Apr 09-Mar 10

### **Undergraduate Honor and Research Advisees**

David Bainbridge, 1989 - 1990 (ICS Honors Program)  
Pat Stephens, 1991 - 1992 (Campus Honors Program)  
David DiGrigorio, 1995 - 1998 (ICS & Campus Honors Program)  
Steve Ganem, 1997 - 1998 (Campus Honors Program)  
Torrey Searle, 1999 - (ICS Honors Program)  
Rex Chin-Ju Chen, 2002-2003 (ICS Honors Program)  
Robert On, 2002-2003 (ICS Honors Program)  
Luis Angel Bathen 2005 (NSF REU Program)  
Michael Shimasaki (HSSOE Undergraduate Research Fellow, 2005-2006)  
Nicholas Pham (Undergraduate Research Advisee)  
Michael Wei (Undergraduate Research Advisee, Summer 2008-2009 )

**Pregraduate Mentorship Program Advisees**

Melinda Hardy, 1990 - 1991.

**UC LEADS Mentorship Program Advisees**

Rafael Lopez, Summer 2001.

Korey Sewell, Summer 2003.

## RESEARCH FUNDING

<u>Title</u>	<u>Dates</u>	<u>Agency</u>	<u>Amount</u>
<i>Unrestricted Research Gift</i>	5/09	NEC Labs Inc.	<b>\$60,000</b>
<i>Unrestricted Research Gift</i>	1/09	Fujitsu Labs of America	<b>\$10,000</b>
<i>Design space exploration of memory-intensive embedded systems</i>	6/08-12/09	UC MEXUS-CONACYT	<b>\$25,000</b>
<i>Equipment Donation</i>	5/08	NVIDIA Corp.	<b>\$6,460</b>
<i>Unrestricted Research Gift</i>	11/07	Fujitsu Labs of America	<b>\$16,700</b>
<i>Unrestricted Research Gift</i>	9/07	Renesas Technology Corp.	<b>\$60,000</b>
<i>Temperature-aware SoC Optimization Framework</i> (co-PI with Fadi Kurdahi)	7/07-6/10	Semiconductor Research Corp.	<b>\$180,000</b>
<i>Cross-Layer Error Exploitation for Next Generation SoCs</i> (co-PI with Fadi Kurdahi and Ahmed Eltawil)	7/07-6/10	NSF CCF	<b>\$500,000</b>
<i>Collaborative Research: Consortium for Embedded Systems</i>	1/07-12/07	NSF IIP	<b>\$10,000</b>
<i>Unrestricted Research Gift</i>	3/07	The Nuekom Institute	<b>\$32,000</b>
<i>Power estimation of a SoC design at System-Level</i>	4/06-3/07	Fujitsu Labs Inc.	<b>\$25,000</b>
<i>Unrestricted Research Gift</i>	12/06	The Nuekom Institute	<b>\$46,000</b>
<i>Unrestricted Research Gift</i>	9/06	The Nuekom Institute	<b>\$36,000</b>
<i>Modeling and Exploiting Cross-Layer Timing in Distributed Embedded Systems</i> (co-PI with Nalini Venkatasubramanian)	7/06-6/07	NSF EHS/CNS	<b>\$125,000</b>
<i>Unrestricted Research Gift</i>	8/05	Fujitsu Ltd.	<b>\$50,000</b>
<i>SOC Power Optimization Framework</i>	7/05-6/08	Semiconductor Research Corp.	<b>\$245,384</b>
<i>SOC Power Optimization Framework</i>	7/05-6/08	CAL-IT2 matching for SRC award	<b>\$38,400</b>
<i>ADL-Driven, Compiler-in-the-Loop Early Microarchitectural Exploration</i> (co-PI with Alex Nicolau)	7/05-6/06	California MICRO/Intel	<b>\$64,938</b>
REU Supplement	6/05-9/05	NSF	<b>\$6,000</b>

<i>ADL-Driven, Compiler-in-the-Loop Early Microarchitectural Exploration</i> (co-PI with Alex Nicolau)	7/04-6/05	California MICRO/Intel	<b>\$59,450</b>
<i>Equipment Donation</i>	4/03-3/04	Xilinx, Inc.	<b>\$18,638</b>
<i>Compiler-in-the-loop ADL-Driven Early Architectural Exploration</i>	9/03-8/06	Semiconductor Research Corp.	<b>\$318,746</b>
<i>Bus-based SOC Architectural Exploration</i>	7/03-6/04	California MICRO/Conexant	<b>\$41,458</b>
<i>ADL-Driven, Compiler-in-the-Loop Early Microarchitectural Exploration</i> (co-PI with Alex Nicolau)	7/03-6/04	California MICRO/Intel	<b>\$78,333</b>
<i>Unrestricted Research Gift</i>	8/02-10/04	Hitachi Ltd.	<b>\$50,000</b>
<i>An Application Development Environment for Complex Heterogeneous Distributed Real-Time Embedded Computing Platforms</i> (co-PI with Alex Nicolau, Rajesh Gupta, Sandeep Shukla, Doug Schmidt)	10/02-9/05	NSF NGS Program	<b>\$460,000</b>
<i>ITR: Virtual Power for the Wireless Campus</i> (co-PI with Michael Franz, Chandra Krintz, Rich Wolinsky, Pai Chou and Tony Givargis)	9/02-8/05	NSF Medium ITR	<b>\$2,000,798</b>
<i>Platform-Oriented CAD for Power and Performance Optimization</i>	7/02-6/05	NSF DA Program	<b>\$96,060</b>
<i>ADL-Based Exploration of Reconfigurable CoProcessors</i>	8/02-10/04	Hitachi Ltd.	<b>\$100,000</b>
<i>Coordinated Coarse-grain and Fine-grain Optimizations for High-Level Synthesis</i> (co-PI with Gupta, Nicolau)	7/02-6/03	California MICRO/Intel	<b>\$82,500</b>
<i>Background Study and Planning Activity for the National Experimental Platform for Hybrid and Embedded Systems Technology (NEPHEST)</i>	1/02-7/03	DARPA/Lockheed Martin	<b>\$90,641</b>
<i>SRC Master's Fellowship</i>	9/01-8/03	Semiconductor Research Corp.	<b>\$42,964</b>
<i>Feasibility Study for Research in Architecture Description Languages</i>	7/01-6/02	Hitachi Ltd.	<b>\$20,000</b>
<i>Coordinated Coarse-grain and Fine-grain Optimizations for High-Level Synthesis</i> (co-PI with Gupta, Nicolau)	7/01-6/02	California MICRO	<b>\$75,000</b>
<i>Unrestricted Research Gift</i> (co-PI with Nicolau)	7/00-6/01	Motorola Corp.	<b>\$500,000</b>



<i>Coordinated Coarse-grain and Fine-grain Optimizations for High-Level Synthesis</i>	7/00-6/01	California MICRO	<b>\$78,438</b>
(co-PI with Gupta, Nicolau)			
<i>A Parallelizing Compiler Framework for Integrated System Design</i>	7/00-6/03	Semiconductor Research Corp.	<b>\$450,000</b>
(co-PI with Gupta, Nicolau)			
<i>Unrestricted Research Gift</i>	9/99-8/00	Hitachi Ltd.	<b>\$40,000</b>
<i>Compiler-Controlled Continuous Power-Performance Management (COPPER)</i>	6/00-5/02	DARPA ITO	<b>\$800,790</b>
(co-PI with Nicolau, Veidenbaum, Gupta)			
REU Supplement	1/99-6/99	NSF	<b>\$10,000</b>
NSF Grant	7/97-6/00	NSF	<b>\$389,424</b>
(co-PI with Alex Nicolau)			
Micro	7/97-6/98	California MICRO	<b>\$179,954</b>
(co-PI with Fadi Kurdahi)			
Micro	7/96-6/97	California MICRO	<b>\$179,758</b>
(co-PI with Fadi Kurdahi)			
Research Donation	1/95-12/95	Xilinx Corporation	<b>\$7,925</b>
SRC Grant	7/95-6/96	Semiconductor Research Corp.	<b>\$56,700</b>
Micro	7/95-6/96	California MICRO	<b>\$31,430</b>
(co-PI with Fadi Kurdahi)			
Research Instrumentation	4/95-3/97	NSF	<b>\$71,411</b>
(lead PI)			
SRC Grant	7/94-6/95	Semiconductor Research Corp.	<b>\$62,527</b>
Micro	7/94-6/95	California MICRO	<b>\$27,000</b>
Micro	7/94-6/95	California MICRO	<b>\$40,500</b>
(co-PI with Fadi Kurdahi)			
Research Donation	9/93-8/94	Xilinx Corporation	<b>\$11,495</b>
Micro	7/93-6/94	California MICRO	<b>\$133,420</b>
(co-PI with Fadi Kurdahi)			
SRC Grant	7/93-6/94	Semiconductor Research Corp.	<b>\$62,527</b>
Faculty Research Grant	6/93-6/94	UCI Committee on Research	<b>\$10,000</b>
Minority Student Supplement	12/92-6/93	NSF	<b>\$5,000</b>
SRC Grant	10/92-6/93	Semiconductor Research Corp.	<b>\$48,797</b>
Equipment Donation	3/92	Zycad Corporation	<b>\$50,000</b>
SRC Grant	10/91-9/92	Semiconductor Research Corp.	<b>\$65,246</b>
Micro	10/91-9/92	California MICRO	<b>\$39,344</b>
(co-PI with Dan Gajski)			
SRC Equipment Grant	12/91	Semiconductor Research Corp.	<b>\$28,000</b>
Research Initiation	7/90-6/92	NSF	<b>\$60,000</b>
REU Supplement	7/90-6/92	NSF	<b>\$10,000</b>
SRC Grant	7/90-6/91	Semiconductor Research Corp.	<b>\$59,750</b>
Micro	7/90-6/91	California MICRO	<b>\$114,000</b>
(co-PI with Dan Gajski)			
UCI Research Grant	6/90-6/91	UCI Committee on Research	<b>\$5,000</b>
Faculty Research Grant	4/90-6/90	ICS/UCI	<b>\$3,000</b>
Asst. Prof. Recognition	8/89	Rockwell International	<b>\$18,500</b>
Library and Travel Grants	87-92	ACM SIGDA	<b>\$7,100</b>

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- B3** “Memory Architecture Exploration for Programmable Embedded Systems,” with P. Grun and A. Nicolau, Kluwer Academic Publishers, Norwell, MA, 2003, ISBN: 1402073240.
- B4** “SPARK: A Parallelizing Approach to the High-Level Synthesis of Digital Circuits,” with S. Gupta, R. Gupta and A. Nicolau, Kluwer Academic Publishers, Norwell, MA, 2004.
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- B7** “Processor Description Languages: Applications and Methodologies,” with P. Mishra, Morgan Kaufman/Elsevier Systems-on-Silicon Series, 2008.

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- C171** S. Pasricha, Y. Park, F. Kurdahi, N. Dutt, "System-Level Power-Performance Trade-Offs in Bus Matrix Communication Architecture Synthesis," Proceedings of the *International Symposium on Hardware/Software Codesign and System Synthesis (CODES+ISSS 2006)*, October 2006.
- C172** M. Kim, S. Banerjee, N. Dutt, N. Venkatasubramanian, "Design Space Exploration of Real-time Multimedia MPSoCs with Heterogeneous Scheduling Policies," Proceedings of the *International Symposium on Hardware/Software Codesign and System Synthesis (CODES+ISSS 2006)*, October 2006.
- C173** A. Gupta, F. Kurdahi, N. Dutt, K. Khouri, M. Abadir., "Floorplan Driven Leakage power Aware IP-Based SoC Design Space Exploration," Proceedings of the *International Symposium on Hardware/Software Codesign and System Synthesis (CODES+ISSS 2006)*, October 2006.
- C174** I. Issenin and N. Dutt, "Data Reuse Driven Energy-Aware MPSoC Co-Synthesis of Memory and Communication Architecture for Streaming Applications," Proceedings of the *International Symposium on Hardware/Software Codesign and System Synthesis (CODES+ISSS 2006)*, October 2006.
- C175** K. Lee, A. Shrivastava, I. Issenin and N.D. Dutt, "Mitigating Soft Error Failures for Multimedia Applications by Selective Data Protection," *Proc. Of the 2006 International Conference on Compilers, Architectures and Synthesis for Embedded Systems (CASES-2006)*, Seoul, Korea, October 2006.
- C176** R. Cornea, A. Nicolau, and N. Dutt, "Annotation Based Multimedia Streaming Over Wireless Networks," *Proceedings of the IEEE 2006 4<sup>th</sup> Workshop on Embedded Systems for Real Time Multimedia (ESTIMEDIA 2006)*, Seoul, Korea, October 2006.
- C177** S. Banerjee, E. Bozorgzadeh, J. Noguera and N.Dutt, "Minimizing peak power for application chains on architectures with partial dynamic reconfiguration," *Proc. of the 2006 International Conference on Field Programmable Technology (ICFPT-2006)*, Bangkok, Thailand, Dec. 2006.
- C178** A. Gupta, F. Kurdahi, N. Dutt, K. Khouri, M. Abadir., "STEFAL: A System Level Temperature and Floorplan-Aware Leakage Power Estimator for SoCs," *Proceedings of the 2007 International Conference on VLSI Design*, Bangalore, India, January, 2007.
- C179** A. Gupta, N. Dutt, F. Kurdahi, K. Khouri, M. Abadir. "LEAF: A System Level Leakage-Aware Floorplanner for SoCs," Proceedings of *ASPDAC-2007*, January 2007.
- C180** A. Felch, J. Moorkanikara, A. Chandrashekar, J. Furlong, N. Dutt, R. Granger, A. Nicolau, A. Veidenbaum, "Accelerating Brain Circuit Simulations of Object Recognition with a Sony PlayStation 3," *Proceedings of the IWIA*, January 2007.
- C181** R. Cornea, A. Nicolau and N. D. Dutt, "Annotation Integration and Trade-off Analysis for Multimedia Applications," *Proceedings of the 21st IEEE/ACM International Parallel and Distributed Processing Symposium (IPDPS 2007)*, Long Beach, CA, March 2007.
- C182** Q. Zhu, A. Shrivastava, and N.D. Dutt, "Functional Validation for Partially Bypassed Processor Pipelines," *Proceedings of the 2007 Conference on Design, Automation and Test in Europe (DATE 2007)*, April 2007.
- C183** M. Kim, C. Talcott, M. Stehr, N. Dutt, and N. Venkatasubramanian, "A Probabilistic Formal Analysis Approach to Cross Layer Optimization in Distributed Embedded Systems," *Proc. 9th IFIP International Conference on Formal Methods for Open Object-Based Distributed Systems (FMOODS 07)*, Cyprus, June 2007.
- C184** I. Issenin and N.D. Dutt, "Data Reuse Driven Memory and Network-on-Chip Co-Synthesis", *Proc. 2007 IFIP International Embedded Systems Symposium (IESS 07)*, Irvine, June 2007. (Also published as BC23.)

- C185** N. D. Dutt, "Modeling of Software-Hardware Complexes, in Embedded System Design: Topics, *Proc. 2007 IFIP International Embedded Systems Symposium (IESS 07)*, Irvine, June 2007. (Also published as BC24.)
- C186** S. Banerjee, E. Bozorgzadeh, J. Noguera and N. Dutt, "Selective bandwidth and resource management in scheduling for dynamically reconfigurable architectures," *Proceedings of the Design Automation Conference 2007 (DAC 2007)*, San Diego, CA, June 2007.
- C187** J. Furlong, A. Felch, J. Moorkanikara, N. Dutt, A. Nicolau, A. Veidenbaum, A. Chandrashekar, R. Granger, "Novel Brain-Derived Algorithms Scale Linearly with Number of Processing Elements," *Proceedings of the 2007 Symposium on Parallel Computing with FPGA's (ParaFPGA)*, Juelich, Germany, September 2007.
- C188** D.Cho, I. Issenin, N.D. Dutt, and Y. Paek, "Software Controlled Memory Layout Reorganization for Irregular Array Access Patterns," *Proc. Of the 2007 International Conference on Compilers, Architectures and Synthesis for Embedded Systems (CASES-2007)*, Salzburg, Austria, October 2007.
- C189** G. Madl, S. Abdelwahed, and N. Dutt, "Performance Estimation of Distributed Real-time Embedded Systems by Discrete Event Simulations," *Proceedings of the 7th Annual ACM Conference on Embedded Software(EMSOFT'07)*, October 2007.
- C190** M. Kim, M. Stehr, C. Talcott, N. Dutt and N. Venkatasubramanian, "Combining Formal Verification with Observed System Execution Behavior to Tune System Parameters," *Proceedings of the 5th International Conference on Formal Modelling and Analysis of Timed Systems (FORMATS'07)*, Salzburg, Austria, October 2007.
- C191** Y. Park, S. Pasricha, F.J. Kurdahi, N. Dutt, "System Level Power Estimation Methodology with H.264 Decoder Prediction IP Case Study," *International Conference on Computer Design (ICCD 2007)*, Lake Tahoe, October 2007.
- C192** S. Pasricha, Y. Park, F.J. Kurdahi, N. Dutt, " Incorporating PVT Variations in System-level Power Exploration of On-Chip Communication Architectures," *Proceedings of the 2008 International Conference on VLSI Design*, Hyderabad, India, January, 2008.
- C193** D. Kannan, A. Gupta, A. Shrivastava, N. Dutt, and F. Kurdahi, " PTSMT: A Tool for Cross-Level Power, Performance and Temperature Exploration of SMT Processors," *Proceedings of the 2008 International Conference on VLSI Design*, Hyderabad, India, January, 2008.
- C194** S. Pasricha, N. Dutt. "ORB: An On-chip Optical Ring Bus Communication Architecture for Multi-Processor Systems-on-Chip," *Proceedings of ASPDAC-2008, Seoul, Korea*, January 2008.
- C195** A. Shrivastava, I. Issenin , N. Dutt, "A Compiler-in-the-Loop Framework to Explore Horizontally Partitioned Cache Architectures," *Proceedings of ASPDAC-2008*, January 2008.
- C196** N. Dutt, "Quo Vadis, BTSoCs (Billion Transistor SoCs)?" Panel Position Statement, *Proceedings of ASPDAC-2008*, January 2008.
- C197** M. Kim, M. Stehr, C. Talcott, N. Dutt and N. Venkatasubramanian, "Constraint Refinement for Online Verifiable Cross-Layer System Adaptation," *Proceedings of the 2008 Conference on Design, Automation and Test in Europe (DATE 2008)*, March 2008.
- C198** N. Dutt, "Design Methodology for Memory-aware NoC Exploration and Design," Special Session on The Memory Challenge in NOC based Systems, *Proceedings of the 2008 Conference on Design, Automation and Test in Europe (DATE 2008)*, March 2008.



- C199** A. Gupta, F. Kurdahi, N. Dutt, K. Khouri, M. Abadir., “Thermal Aware Global Routing of VLSI Chips for Enhanced Reliability,” *Proceedings of ISQED 2008*, March 2008.
- C200** D. Cho, I. Issenin, S. Pasricha, N. Dutt, and Y. Paek, “Compiler Driven Data Layout Optimization for Regular/Irregular Array Access Patterns,” *Proceedings of ACM SIGPLAN/SIGBED Conference on Languages, Compilers, and Tools for Embedded Systems (LCTES08)*, June 2008.
- C201** N. Dutt, “ESL Hand-off: Fact or EDA Fiction?” Panel Position Statement, *Proceedings of the Design Automation Conference 2007 (DAC 2007)*, Anaheim, CA, June 2008.
- C202** S. Pasricha, N. Dutt, and F. Kurdahi. “System Level Performance Analysis of Carbon Nanotube Global Interconnects for Emerging Chip Multiprocessors,” *Proceedings of the IEEE/ACM International Symposium on NanoScale Architectures (NanoArch 2008)*, Anaheim, CA, June 2008.
- C203** K. Lee, M. Kim, N. Dutt, N. Venkatasubramanian, “Error-Exploiting Video Encoder to Extend Energy/QoS Tradeoffs for Mobile Embedded Systems,” *Proceedings of the IFIP Working Conference on Distributed and Parallel Embedded Systems (DIPES2008)*, Milano, Italy, September 2008.
- C204** K. Lee, A. Shrivastava, N. Dutt, N. Venkatasubramanian, “Data Partitioning Techniques for Partially Protected Caches to Reduce Soft Error Induced Failures,” *Proceedings of the IFIP Working Conference on Distributed and Parallel Embedded Systems (DIPES2008)*, Milano, Italy, September 2008.
- C205** A. Gupta, A. Djahromi, F. Kurdahi, A. Eltawil, and N. Dutt, “Managing Leakage Power and Reliability in Hot Chips Using System Floorplanning and SRAM Design,” *Proceedings of the 14<sup>th</sup> International Workshop on Thermal Investigations of ICs and Systems (THERMINIC-2008)*, Rome, Italy, September 2008.
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- C206** Y. Park, S. Pasricha, F. Kurdahi, N. Dutt, “Methodology for Multi-Granularity Embedded Processor Power Model Generation for an ESL Design Flow,” *Proceedings of the International Symposium on Hardware/Software Codesign and System Synthesis (CODES+ISSS 2008)*, October 2008.
- C207** K. Lee, A. Shrivastava, M. Kim, N. Dutt, N. Venkatasubramanian, “Mitigating the Impact of Hardware Failures on Multimedia Applications -- A Cross-Layer Approach,” *Proceedings of ACM Multimedia (Mutimedia2008)*, Vancouver, Canada, October 2008.
- C208** A. Khajeh, M. Kim, N. Dutt, A. Eltawil and F. Kurdahi, “Cross-Layer Co-Exploration of Exploiting Error Resilience for Video over Wireless Applications” *Proceedings of the 6<sup>th</sup> IEEE Workshop on Embedded Systems for Real Time Multimedia (ESTIMEDIA 2008)*, Atlanta, GA, October 2008.
- C209** L. Bathen, S. Pasricha, and N. Dutt, “A Framework for Memory-aware Multimedia Application Mapping on Chip-Multiprocessors,” *Proceedings of the 6<sup>th</sup> IEEE Workshop on Embedded Systems for Real Time Multimedia (ESTIMEDIA 2008)*, Atlanta, GA, October 2008.
- C210** S. Pasricha, N. Dutt, and F.J. Kurdahi, “Exploring Carbon Nanotube Bundle Global Interconnects for Chip Multiprocessor Applications,” *Proceedings of the 2009 International Conference on VLSI Design*, New Delhi, India, January, 2009.
- C211** S. Pasricha, N. Dutt, and F. Kurdahi., “Dynamically Reconfigurable On-Chip Communication Architectures for Multi Use-Case Chip Multiprocessor Applications,” *Proceedings of ASPDAC-2009*, January 2009.
- C212** A Khajeh, A Gupta, N Dutt, F Kurdahi and A Eltawil, “TRAM: A Tool For Temperature and Reliability Aware Memory Design,” *Proceedings of the 2009 Conference on Design, Automation and Test in Europe (DATE 2009)*, April 2009.

**C213** G. Madl, S. Abdelwahed, and N. Dutt, "A Conservative Approximation Method for the Verification of Preemptive Scheduling using Timed Automata," *Proceedings of IEEE Real-Time and Embedded Technology and Applications Symposium 2009 (RTAS'09)*, April 2009.

**C214** A. Gupta, S. Pasricha, N. Dutt, F. Kurdahi, K. Khouri, and M. Abadir, "On Chip Communication-Architecture Based Thermal Management for SoCs," *Proceedings of the 2009 International Symposium on VLSI Design, Automation & Test (VLSI-DAT 2009)*, Taiwan, April 2009.

**C215** J. Moorkanikara, N. Dutt, Y. Wang and T. Delbrueck, "Computing Spike-Based Convolutions on GPUs," *Proceedings of the 2009 IEEE International Symposium on Circuits and Systems (ISCAS 2009)*, Taipei, Taiwan, May 2009.

**C216** J. Moorkanikara, N. Dutt, J. Krichmar, A. Nicolau, and A. Veidenbaum, "Efficient Simulation of Large-Scale Spiking Neural Networks Using Graphics Processors," *Proceedings of the 2009 International Joint Conference on Neural Networks (IJCNN2009)*, Atlanta, GA, June 2009.  
**(BEST PAPER AWARD)**

**C217** A. Halambi, N. Dutt and A. Nicolau, "TransMutations: Towards a Human-Quality Optimizing Compiler," *Proceedings of the 2009 EuroMicro Digital System Design Conference (DSD 2009)*, August 2009. (Invited Keynote Paper)

#### **PREMIER REFEREED WORKSHOPS**

**W1** N.D. Dutt, "A Language for Designer Controlled Behavioral Synthesis," *1989 ACM/IEEE Physical Design Workshop*, Long Beach, CA, May 2, 1989 (Invitation-only workshop).

**W2** N.D. Dutt, "Annotated Textual State Tables: An Intermediate Representation for Synthesis," *IEEE Design Automation Workshop*, Scottsdale, AZ, Jan 22, 1990 (Invitation-only workshop).

**W3** N.D. Dutt and J.R. Kipps, "Bridging High Level Synthesis to RTL Technology Libraries," *ACM/IEEE Fifth International Workshop on High Level Synthesis*, Buehlerhoehe, Germany, March 1991 (Refereed by Program Committee).

**W4** P.K. Jha and N.D. Dutt, "Rapid Estimation for Parameterized Components in High-Level Synthesis," *ACM/IEEE Sixth International Workshop on High Level Synthesis*, Dana Point, CA, November 1992 (Refereed by Program Committee).

**W5** P.K. Jha and N.D. Dutt, "Generic Component Sets and Rapid Technology Projection for High-Level Design Applications," *The 4th ACM/IEEE Physical Design Workshop*, Lake Arrowhead, CA, April 1993 (Refereed by Program Committee).

**W6** C. Ramachandran, P.K. Jha, F. Kurdahi and N.D. Dutt, "The Effects of Variations in Component Styles and Shapes on Functional Synthesis," *Proceedings of The International IFIP Workshop on Logic and Architecture Synthesis*, Grenoble, France, December 1993.

**W7** N.D. Dutt, "High-Level Synthesis for Real Architectures -- An Academic HLS View," *1994 IEEE Winter VLSI Workshop*, La Jolla, CA, April 1994 (Invited talk).

**W8** S. Novack, A. Nicolau and N.D. Dutt, "A Unified Code Generation Approach Using Mutation Scheduling," *First Workshop on Code Generation for Embedded Processors*, Schloss Dagstuhl, Germany, August 1994 (Invited talk and paper).

- W9** D. Kolson, A. Nicolau and N.D. Dutt, "Register Allocation for Embedded Processors with Non-Uniform Register Files," *Second Workshop on Code Generation for Embedded Processors*, Belgium, March 1996 (Invited talk).
- W10** N.D. Dutt, "Software Synthesis for Embedded Systems: What's new?," *1996 Dagstuhl workshop on Design Automation for Embedded Systems*, Schloss Dagstuhl, Germany, April 1996.
- W11** N.D. Dutt, Position Statement at the *National Science Foundation Workshop on Future Research Directions in CAD for Electronic Systems*: "Putting the 'D' Back in CAD," Seattle, WA, May 13-14, 1996.
- W12** A. Halambi, A. Nicolau and N.D. Dutt, "Retaining Semantic Information for Improved Code Generation," *Third Workshop on Code Generation for Embedded Processors*, Haus Bommerholz, Witten, Germany, March 1998 (Invited talk).
- W13** P. Grün, A. Nicolau & N.D. Dutt, "Automatic Generation of a Software Toolkit from EXPRESSION," *Fourth Workshop on Software and Compilers for Embedded Systems*, St. Goar, Germany, August 1999. (Invited talk).
- W14** A. Halambi, N.D. Dutt and A. Nicolau, "Customizing Software Toolkits for Embedded System-On-Chip," *International IFIP Workshop on Distributed and Parallel Embedded Systems(DIPES2000)*, Paderborn University, Germany, October 2000.
- W15** P. Grün, N.D. Dutt and A. Nicolau, "Aggressive Memory-Aware Compilation," *The 2nd Workshop on Intelligent Memory Systems*, In conjunction with ASPLOS-IX, Boston Massachusetts, November 12, 2000 (Reviewed by Program Committee)
- W16** A. Halambi, A. Shrivastava, N.D. Dutt and A. Nicolau, "A Customizable Compiler Framework for Embedded Systems," *Fifth Workshop on Software and Compilers for Embedded Systems (SCOPES 2001)*, St. Goar, Germany, March 2001 (Reviewed by Program Committee).
- W17** P. Mishra, F. Rousseau, N.D. Dutt and A. Nicolau, "Architecture Description Language Driven Design Space Exploration in the Presence of Coprocessors," *Proceedings of the 10<sup>th</sup> (SASIMI 2001)*, October 2001.
- W18** P. Mishra, N. Krishnamurthy, N. Dutt and M. Abadir, "A Property Checking Approach to Microprocessor Verification using Symbolic Simulation," *Microprocessor Test and Verification (MTV)*, Austin, Texas, June 2002.
- W19** R. Cornea, S. Mohapatra, N.D. Dutt, R.K. Gupta, I. Kreuger, A. Nicolau, D. Schmidt, S.K. Shukla, and N. Venkatasubramanian, "A Model-Based Approach to System Specification for Distributed Real-time and Embedded Systems," *9th IEEE Real-time/Embedded Technology and Applications Symposium Workshop on Model-Driven Embedded Systems, (RTAS 2003)*, Washington, D.C., May 2003.
- W20** S. Mohapatra, R. Cornea, N.D. Dutt, A. Nicolau, and N. Venkatasubramanian, "Power-Aware Multimedia Streaming in Heterogenous Multi-User Environments," *IFIP/IEEE International Workshop on Concurrent Information Processing and Computing (CIPC 2003)* Sinaia, Romania, July 2003.
- W21** R. Cornea, N.D. Dutt, R. Gupta, S. Mohapatra, A. Nicolau, C. Pereira, S. Shukla and N. Venkatasubramanian, "ServiceFORGE: A Software Architecture for Power and Quality Aware Services," *International Workshop on Service-Based Software Engineering (co-located with Formal Methods in Europe – FME)*, Pisa, Italy, September 2003.
- W22** S. Pasricha, S. Mohapatra, M. Luthra, N.D. Dutt and N. Venkatasubramanian, "Reducing Backlight Power Consumption for Streaming Video Applications on Mobile Handheld Devices," *First Workshop on Embedded Systems for Real-Time Multimedia*, Newport Beach, CA, October 3-4 2003.
- W23** H. Tomiyama, H. Takada and N.D. Dutt, "Data Organization Exploration for Low Energy Address Buses," *First Workshop on Embedded Systems for Real-Time Multimedia*, Newport Beach, CA, October 3-4 2003.

- W24** N. Bansal, S. Gupta, N.D. Dutt and A. Nicolau, "Analysis of Coarse-Grain Reconfigurable Architectures with Different Processing Element Configurations," *Second Workshop on Application-Specific Processors (WASP'03)*, San Diego, CA, Dec. 2003.
- W25** R. Cornea, S. Mohapatra, N.D. Dutt, A. Nicolau, and N. Venkatasubramanian, "Managing Cross-Layer Constraints for Interactive Mobile Multimedia," *Workshop on Constraint-aware Embedded Software*, Cancun, December 2003.
- W26** Partha Biswas, Sudarshan Banerjee, Nikil Dutt, Laura Pozzi, and Paolo Ienne, "Fast Automated Generation of High-Quality Instruction Set Extensions for Processor Customization," *Third Workshop on Application-Specific Processors (WASP'04)*, Stockholm, Sweden, September 2004. (**BEST PAPER AWARD CANDIDATE**)
- W27** G. Madl and N. Dutt, "Domain-specific Modeling of Power Aware Distributed Real-time Embedded Systems", *SAMOS VI: Workshop on Embedded Computer Systems: Architectures, MOdeling, and Simulation*, 2006. (Proceedings published as Book Chapter BC20.)
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- W28** M. Kim, D. Massaguer, N. Dutt, S. Mehrotra, S. Ren, M. Oliver, C. Talcott and N. Ventakasubramanian, "A Semantic Framework for Reconfiguration of Instrumented Cyber Physical Spaces", *Workshop for Event-based Semantics (WEBS)*, (Colocated with CPSWeek/RTAS 2008), St. Louis, MO, April 2008.

## PANELS AND TUTORIALS

### PANELS

- P1** Panel Statement: "How 'High' is High-Level Synthesis?", *IEEE Computer Society 1992 Workshop on VLSI*, Clearwater Beach, FL, February 2-5, 1992.
- P2** Panel Moderator: "Physical Design Models at the Behavioral Level," *Focused Workshop on Linking Behavioral and Physical Models of Hardware*, Irvine, CA, May 30, 1992.
- P3** Panel Statement: "Hardware/Software Co-Design: Are there any new problems?," *IEEE First Asia Pacific Conference on Hardware Description Languages, Standards and Applications*, Australia, December 1993.
- P4** Panel Organizer & Moderator: "Design Reuse: Fact or Fiction?" *31st ACM/IEEE Design Automation Conference*, San Diego, CA, June 1994.
- P5** Panel Organizer & Moderator: "Impact of Memory Technology and Architectures on System Synthesis," *International Symposium on System Synthesis (ISSS-97)*, Antwerp, Belgium, September 1997.
- P6** Panel Organizer & Moderator: "If Software is King for Systems-on-Silicon, What's New in Compilers?" *ICCD-97: International Conference on Computer Design*, Austin, TX, October 1997.
- P7** Panel Organizer: "IP-Based Design: VIP (Very Important Process) or RIP (Rest in Peace)?" *International Symposium on System Synthesis (ISSS-98)*, Hsinchu, Taiwan, December 1998.
- P8** Panel Organizer: "Driving Agenda in Systems Research," *International Symposium on Hardware/Software Codesign and System Synthesis (CODES+ISSS 2003)*, Newport Beach, CA, Oct. 2003.
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- P9** Panel Organizer: "Multi-Processor Platforms for Next Generation Embedded Systems," *ASPDAC-2007*, Yokohama, January 2007.

- P10** Panel Participant: "Modeling of Software-Hardware Complexes," *International Embedded Systems Symposium*, Irvine, CA, May 2007.
- P11** Panel Participant: "Best Ways to use Billions of Devices on a Chip," *ASPDAC-2008, Seoul, Korea*, January 2008.
- P12** Panel Participant: "'Methodologies for On-Chip Communication Design: Trends and Challenges'," *MEMOCODE-2008, Anaheim, CA, June 2008*.
- P13** Panel Participant: "ESL Hand-off: Fact or EDA Fiction?," *DAC-2008, Anaheim, CA, June 2008*.

#### **TUTORIALS AT CONFERENCES**

- TC1** "Design Representation in Synthesis," presented at the *1989 VHDL Users' Group Meeting*, Redondo Beach, CA, October 1989.
- TC2** "High Level Design Synthesis: Specifications, Algorithms and Tools," presented at *the 27th ACM/IEEE Design Automation Conference*, June, 1990.
- TC3** "High-Level Chip and System Synthesis," presented at the *IEEE Asia-Pacific Conference on Circuits and Systems 1992 (APCCAS 92)*, December 1992.
- TC4** "High-Level Synthesis," *4th International IFIP 10.5 Working Conference on Electronic Design Automation Frameworks*, Gramado, Brazil, December 1994 (*Invited Tutorial*).
- TC5** "High-Level Synthesis," *4th International Conference on VLSI and CAD (ICVC-95)*, Seoul, Korea, October 1995 (*Invited Tutorial*).
- TC6** "High-Level Synthesis," *IFIP WG 10 State-of-the-Art Seminar Series*, Bangalore, India, January 1996 (*Invited Tutorial*).
- TC7** "ILP Compilation Techniques for Embedded Processors," presented at the *Design, Automation and Test in Europe (DATE'98) Conference*, February 1998.
- TC8** "Embedded Memories in System Design - From Technology to Systems Architecture," presented at the *IEEE/ACM International Conference on Computer-Aided Design (ICCAD-98)*, November 1998.
- TC9** "Embedded Memories in System Design - From Technology to Systems Architecture," presented at the *36th ACM/IEEE Design Automation Conference*, June 1999.
- TC10** "Embedded Memory in Systems - From Architecture to Design Technology," presented at *the Design, Automation, and Test in Europe (DATE'2000) Conference*, March 2000.
- TC11** "System and Architecture-level Power Reduction of Microprocessor-based Communication and Multi-media Applications," embedded tutorial presented at the *IEEE/ACM International Conference on Computer-Aided Design (ICCAD-2000)*, November 2000.
- TC12** "Embedded Memories in System Design: Technology, Application, Design and Tools," presented at the *VLSI Design 2001 Conference*, Bangalore, India, January 2001.
- TC13** "New Directions in Compiler Technology for Embedded Systems," presented at the *Asia and South Pacific Design Automation Conference (ASP-DAC 2001)*, Yokohama, Japan, January 2001.
- TC14** "What's New in Compilers for Embedded Systems?" presented at the *XIV Symposium on Integrated Circuits and System Design (SBCCI-2001)*, Brasilia, Brazil, September 2001.

- TC15** "Low-Power/Low Energy Embedded Software: What, Why and How?" presented at the *IEEE/ACM International Conference on Computer-Aided Design (ICCAD-2001)*, November 2001.
- TC16** "On-Chip Communication Architectures: Current Practice, Research and Trends" presented at the *Asia and South Pacific Design Automation Conference (ASP-DAC 2006)*, Yokohama, Japan, January 2006.
- TC17** "Hardware and Software Techniques for Multimedia Systems" presented at the International Conference on Multimedia & Expo (ICME 2006), July 2006.
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- TC18** " SoC Communication Architectures: Technology, Current Practice, Research and Trends," presented at *the VLSI Design 2007 Conference*, Bangalore, India, January 2007.
- TC19** "Bus-based Communication Architectures," presented at *the Design, Automation, and Test in Europe (DATE'2007) Conference*, April 2007.
- TC20** "Cross-Layer Approaches to Designing Reliable Systems using Unreliable Chips" presented at the *VLSI Design 2008 Conference*, Hyderabad, India, January 2008.
- TC21** "Cross-Layer Approaches to Designing Reliable Systems using Unreliable Chips" presented at the *Asia and South Pacific Design Automation Conference (ASP-DAC 2008)*, Seoul, Korea, January 2008.
- TC22** "Cross-Layer Approaches to Designing Reliable Systems using Unreliable Components," presented at *the Design, Automation, and Test in Europe (DATE'2009) Conference*, April 2009.

## COURSES TAUGHT

- ICS 280A: SQ90, Graduate course on Algorithms for High Level Synthesis.
- ICS 280B: SQ91, Graduate course on Timing Issues in Specification and Synthesis of Hardware.
- ICS 280C: FQ92, Graduate course on Digital System Testing and Testable Design.
- ICS 290N: FQ90, WQ91, SQ91, FQ91, WQ92, SQ93, Seminar on Design Languages and Representations.
- ICS 299: Every Quarter Since FQ 90, Independent Study.
- ICS 53: SQ00, SQ01, Embedded Computing Systems.
- ICS 151/CS 151: FQ90, FQ91, SQ93, FQ94, FQ95, WQ97, FQ97, FQ00, SQ02, FQ03, FQ04, WQ05, FQ05, WQ06, FQ06, SQ07, SQ08 Undergraduate Introductory Course on Logic Design.
- ICS 155A: SQ89, FQ89, SQ93, WQ95, FQ95, FQ96, WQ97 Undergraduate Laboratory Course on Logic Design.
- ICS 180D: SQ92, Introduction to Hardware Description Languages.
- ICS 198: SQ89, FQ89, WQ90, SQ90, WQ91, SQ91, FQ91, WQ92, WQ96, FQ96, WQ97, SQ97, FQ97, WQ98, SQ98, SQ99, FQ02, WQ03, SQ03 Undergraduate Honor Program.
- ICS 199: FQ89, WQ90, SQ90, WQ91, SQ91, FQ91, WQ92, SQ93, WQ96, FQ96, SQ97, SQ98, WQ99, SQ99, FQ01, WQ02, SQ02 Undergraduate Project Course.

ICS226/ICS253: WQ90, SQ91, SQ92, FQ93, WQ95, FQ96, SQ00 Graduate course on Modeling and Design Description Languages.

ICS227/ICS 256: SQ93, FQ95, SQ98, SQ02 Graduate course on Design Synthesis.

ICS 251: SQ01, Graduate course on digital system testing and verification.

ICS 212/CS212/INF 212: SQ05, FQ05, FQ06 Graduate course on Introduction to Embedded and Ubiquitous Systems.

ICS259: WQ94, FQ94, WQ96, FQ96, SQ97, FQ97, every quarter between FQ98-SQ03, FQ03, SQ04, FQ04: Topics in Design Science.

ICS 202: FQ97, Introductory Seminar for ICS Graduate Students.

ICS 291: FQ97, WQ98, SQ98, FQ99, WQ00, SQ00, FQ02 Directed Research

ICS 399: FQ97, WQ98, SQ98, FQ99, WQ00, SQ00, University Teaching

ECE 299: FQ01, WQ02, SQ02, FQ02, WQ03, SQ03, FQ03, WQ04, SQ04, SQ05 Independent Research

ECE 298: FQ05 EECS Thesis Supervision

UNI STU 3: SQ05, Freshman Seminar

### **New Courses Developed and Courses Upgraded**

ICS 212: SQ05, Graduate course on Introduction to Embedded and Ubiquitous Systems (new course material developed).

ICS 155A: WQ89, Undergraduate Laboratory Course on Logic Design (new course material developed).

ICS 226: FQ89, Graduate course on Modeling and Design Description Languages.

ICS 180D: SQ92, Undergraduate course on Hardware Description Languages.

ICS 280C: FQ92, Graduate course on Digital System Testing and Testable Design.

ICS 155A: WQ94, Undergraduate Laboratory Course on Logic Design (upgraded with Hardware Description Languages and FPGA prototyping tools).

ICS 53: SQ01, Undergraduate course on Embedded Computer Systems (Developed new lab and course lecture material)

### **UNIVERSITY SERVICE**

#### **University-wide Service:**

Executive Committee, Industry-University Cooperative Research Program (IUCRP) for Communication and Networking, , 2005-.

Chair, CORE Proposal Review Committee, Industry-University Cooperative Research Program (IUCRP) for Communication and Networking, , November 2007.

Member, UC Discovery Fellow Review Panel, Berkeley, CA, May 2008.

**Campus-Level Service:**

Graduate Council, 2009-2011

ICS Dean Review Committee, 2008.

Committee on Committees, 2006-2007.

ORU Internal Review Committee: 5-year review of IGB ORU, October 2005.

Council on Educational Policy (CEP), 2002-2005.

Policy Subcommittee, CEP, 2003-2005.

UC LEADS Mentorship Program, Summer 2001, Summer 2003.

Action Committee on Courses, 2000-2002.

Faculty Advisory Committee, Test of English Proficiency (TOEP) Program for non-native English speakers, Summer 2000.

Member, UCI Graduate Council: 1996-1997, 1997-1998.

Chair, Subcommittee on Courses, UCI Graduate Council: 1997-1998.

ICS Representative to the Faculty Senate: 1992-1994, 1994-1996.

Committee on Undergraduate Scholarships, Honors and Financial Aid (CUSHFA): 1993-1995, 1995-1996.

UCI Dissertation Fellowship Award Committee: 1996, 1997, 1998.

UCI Committee on Research: Subcommittee for evaluating Multi-Investigator Research Awards: 1998.

ICS Representative to the UCI Defense Conversion Committee: 1993.

Co-Founder, Irvine Research Unit in Computer Systems Design, UCI with N. Bagherzadeh, L. Bic, D. Blough, D. Gajski, K. Kim, F. Kurdahi, A. Nicolau and T. Suda: 1990.

Graduate Minority Mentorship Program: 1993-1994.

Graduate Minority Summer Mentorship Program, Summer: 1991.

Pregraduate Mentorship Program (for minority students): 1990-1991.

**School-Level Service:**

Chair, SICS Space Committee, 2003-2004, 2004-2005, 2005-2006

Member, SICS Endowed Chair Search Committee: 2003-2004, 2004-2005, 2005-2006, 2006-2007, 2007-2008

Chair, SICS Endowed Chair Search Committee: 2008-2009

**Departmental Service:**



Member, CS Undergraduate Committee, 2003-2004

Member, CS PhD Committee, 2003-2004

Vice-Chair, Division of Systems, Department of Computer Science, July 2003-2004

Chair, Ad-Hoc Committee for Promotion Case, 2003-2004, 2004-2005

Member, Ad-Hoc Committee for 2 Promotion Cases, 2003-2004

Faculty Mentor for Assistant Professor Eli Bozorgzadeh, 2003-

Chair, ICS Recruiting Committee for Embedded Systems (2 positions), 2002-2003.

ICS New Degree Programs Committee: 2001-2002

Faculty Mentor for Assistant Professor Tony Givargis, 2001-.

Chair, ICS Personnel Committee, 2000-2001.

Graduate Advisor and Associate Chair for Graduate Studies (ICS): 1997-1998, 1999-2000.

ICS Undergraduate Committee: 1989-1990.

ICS Academic Personnel Committee: 1990-1991, 2001-2002.

ICS Computing Resources Committee: 1991-1992.

ICS Graduate Admissions Committee: 1991-1992, 1992-1993, 1993-1994, 1994-1995, 1998-1999, 1999-2000, 2001-2002.

Chair, ICS Graduate Policy & Admissions: 1995-1996, 1996-1997.

ICS Space Committee: 1992-1993, 1993-1994, 1994-1995.

ICS Undergraduate Honors Selection Committee: 1993.

Faculty Speaker, ICS Career Day for High School Scholars and Their Families: 1996, 1997

UCI American Indian Summer Institute in Computer Science, *Research Careers in Computer Science*, Participant: 1993.