

ISABELA FIGUEIRA

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EDUCATION

PhD	Informatics, University of California, Irvine (UCI)	Present
MS	Computer Science, University of California, Irvine	June 2020
BS	Computer Science and Engineering, Santa Clara University (SCU) Magna Cum Laude Minors in Mathematics, Music	June 2018

RESEARCH EXPERIENCE

Graduate Student Researcher, Informatics, UCI Fall 2022 – Present
INsite Lab and Accessibility Research Collective (ARC)
Adviser: Dr. Stacy Branham

I am working in the INsite lab directed by Dr. Stacy Branham on multiple qualitative research projects involving accessibility and technology. Methods used include semi-structured interviews and thematic analysis. I have collaborated on multiple projects with other scholars in my research group (refer to the [Conference Publications](#) section). Below, I detail my current research projects.

BLV students' transition from high school to college to study computing Spring 2024 – Present

- Interview study seeking to understand the experience of BLV students as they transition from high school to college to study computing. We plan to submit to CHI 2025.

Interview study of smartphone adoption and accessibility Winter 2023 – Spring 2024

- Research Project Origin: We started working on a volunteer project with our community partner, Dayle McIntosh Center (DMC), to create a series of webinars for older adults with vision loss to learn about devices such as smartphones that could serve their needs.
- Research Aim: To understand the smartphone acquisition and social experience and support needs of older adults with vision loss.
- We presented a work-in-progress poster paper at the ACM **DIS 2023** conference [L2].
- Full paper to appear at **ASSETS 2024** [C6].

Children learning, emotional connection with parents and tech Summer 2023 – Present

- Interview study seeking to understand the literacy development practices of blind or low vision (BLV) parents reading with young, sighted children as well as opportunities for and accessibility of AI reading assistants while co-reading.

Graduate Research Projects, Computer Science, UCI

2020 – 2022

“Mixed Reality Privacy Data Visualization of Internet of Things Devices”

Spring 2022 – Fall 2022

Advisor: Dr. Athina Markopoulou

- I was funded as a Graduate Student Researcher for Fall 2022 to extend a class project started in Spring 2022 in the course Mobile Data Privacy into a fully-fledged demo for an NSF visit at the ProperData Symposium. The project is an interactive Mixed Reality system combining a mobile phone application and a website to visualize IoT device network traffic, giving users a view into IoT device communication as well as the ability to block unwanted traffic.
- I designed and developed the Mixed Reality application ([demo](#)) while my project partner developed the back-end and a website.
- Paper under submission [C5].

“Augmented Reality Patient-Specific Registration for Medical Visualization”

Fall 2020 – Fall 2022

Advisor: Dr. Gopi Meenakshisundaram

- Publication appeared in *the 28th ACM Symposium on Virtual Reality Software and Technology (VRST 2022)* [L1].

Undergraduate Research Projects

2016 – 2018

Senior Design Capstone Project, SCU, Santa Clara, CA

Fall 2017 – Spring 2018

“Symptom Search: Predicting Symptom and Product Correlations using FDA Adverse Effects Reports”

Adviser: Dr. Yi Fang

- My team and I built a system that suggests FDA approved products that could be triggering symptoms or reactions based on past users' interactions with the products. The system provides two results to the user: the likelihood that given drugs cause the given symptom reactions and a ranked list of drugs that are most likely to be causing each given symptom.
- We built the web-based system using Python, Node.js, MongoDB, and data from the OpenFDA Adverse Effects Reports database.
- We presented our work at the 2018 SCU School of Engineering Senior Design Conference and at the 2018 SCU University Honors Program honors thesis poster session.

CRA-W DREU Research Project, Clemson University, Clemson, SC

Summer 2017

“Virtual Human Gesture Prediction Using Machine Learning”

Advisor: Dr. Sophie Jörg

- I participated in a CRA-W¹ DREU program to further build on Dr. Jörg's 2012 SIGGRAPH paper that sought to speed up finger animations of virtual characters.
- Project Aim: To investigate whether machine learning could be used to automatically generate finger motions in conversational virtual humans since finger animation is typically and tediously done by hand. I worked by myself on this project with direction from my advisor Dr. Joerg. The experimental results were promising and pointed to the possibility of using machine learning in the finger motion animation process.
- I presented a poster in the general poster session at the 2017 Grace Hopper Celebration.

¹ Computer Research Association Committee on the Status of Women in Computing Research (CRA-W) now renamed CRA Committee on Widening Participation in Computing Research (CRA-WP)

Research Project, SCU, Santa Clara, CA
“Exposing Privacy Risks on Social Media”

June 2016 – February 2017

Advisor: Dr. Yi Fang

- I worked on machine learning research involving privacy preservation on social media with PhD student Archana Godavarthy. The goal of the research was to determine if people’s tweets on Twitter could reveal information about them that they were unaware they were revealing. Utilizing users that specified in their bios certain phrases that tagged them as being part of one of these categories, we determined that it is possible to determine these traits from just a user’s tweets. I presented my work at the 2017 SCU Engineering Research Showcase.

INDUSTRY EXPERIENCE

Canon USA, Digital Imaging Solutions
Research Intern

Summer 2022

- Worked on a Virtual Reality (VR) teleconferencing project released as Kokomo. I worked on color transfer between images as well as scaling human avatars in Unreal Engine.

Canon USA, Digital Imaging Solutions
Software Development Engineer, Intern

Summer 2021

- Worked as a research intern on a Virtual Reality (VR) teleconferencing project (later released as Kokomo) team. I worked on reducing texture size for network efficiency through texture encoding/generation using autoencoders and GANs written in TensorFlow. I also worked on human skeleton pose/rigging in Unreal Engine.

FELLOWSHIPS AND GRANTS

UCI ICS Innovation Fellowship

2020

The ICS Innovation Fellowship Endowed Fund was established to support the work of promising graduate students enrolled in one of ICS PhD degrees. Recipients are selected based on either their potential to produce socially relevant, innovative work or the innovative nature of their current work at ICS.

HONORS AND AWARDS

Distinguished Paper Award – CHASE 2024 [C4]

April 2024

ASEE Pacific Southwest Undergraduate Student Award 2018

2018

SCU Outstanding Computer Engineering Senior Award

2018

- Bestowed to the senior or seniors by the faculty of the Computer Engineering Department based on academic standing, spirit de corps, and contribution to the department, school, and community.

NCWIT Collegiate Award Finalist

2018

Santa Clara University Honors Program

2014 – 2018

CONFERENCE PUBLICATIONS

To appear:

- [C6] **Isabela Figueira**, Yoonha Cha, Stacy M. Branham. 2024. Intersecting Liminality: Acquiring a Smartphone as a Blind or Low Vision Older Adult. In *The 26th International ACM SIGACCESS Conference on Computers and Accessibility (ASSETS '24)*, October 28–30, 2024, St. John's, Newfoundland and Labrador, Canada. ACM, New York, NY, USA.

under submission:

- [C5] Jad Al Aaraj, Olivia Figueira, Tu Le, **Isabela Figueira**, Rahmadi Trimnanda, Athina Markopoulou. 2024. VBIT: Visualizing and Blocking of IoT Trackers via a Mixed Reality and Web-Based System.
- [C4] Yoonha Cha, Victoria Jackson, **Isabela Figueira**, Stacy M. Branham, André van der Hoek. Understanding the Career Mobility of Blind and Low Vision Software Professionals. In *Proceedings of CHASE '24: 17th International Conference on Cooperative and Human Aspects of Software Engineering (CHASE '2024)*, April 14–15, 2024, Lisbon, Portugal. ACM, New York, NY, USA.
Distinguished Paper Award
- [C3] Yoonha Cha, **Isabela Figueira**, Jessy Ayala, Emory J. Edwards, Joshua Garcia, André van der Hoek, Stacy M. Branham. “Do you want me to participate or not?”: Unpacking the Accessibility of Software Development Meetings for Blind and Low Vision Professionals. In *Proceedings of the CHI Conference on Human Factors in Computing Systems (CHI '24)*, May 11–16, 2024, Honolulu, HI, USA. ACM, New York, NY, USA.
- [C2] Cameron T. Cassidy, **Isabela Figueira**, Sohyeon Park, Jin Seo Kim, Emory J. Edwards, Stacy M. Branham. Cuddling Up with a Braille Book: How Intimacy and Access Shape Parents' Reading Practices with Children. In *Proceedings of the CHI Conference on Human Factors in Computing Systems (CHI '24)*, May 11–16, 2024, Honolulu, HI, USA. ACM, New York, NY, USA.
- [C1] Taslima Akter, Yoonha Cha, **Isabela Figueira**, Stacy M. Branham, and Anne Marie Piper. 2023. “If I’m supposed to be the facilitator, I should be the host”: Understanding the Accessibility of Videoconferencing for Blind and Low Vision Meeting Facilitators. In *The 25th International ACM SIGACCESS Conference on Computers and Accessibility (ASSETS '23)*, October 22–25, 2023, New York, NY, USA. ACM, New York, NY, USA.

WORKS-IN-PROGRESS AND OTHER LIGHTLY REVIEWED WORKS

- [L2] **Isabela Figueira**, Yoonha Cha, Jun Zhu, and Stacy M. Branham. 2023. Smartphone Stories: Experiences of Blind and Low Vision Older Adults in Acquiring a Smartphone. In *Designing Interactive Systems Conference (DIS Companion '23)*, July 10–14, 2023, Pittsburgh, PA, USA. ACM, New York, NY, USA.
- [L1] **Isabela Figueira**, Muhammad Twaha Ibrahim, Aditi Majumder, and M. Gopi. 2022. Augmented Reality Patient-Specific Registration for Medical Visualization. In *28th ACM*

Symposium on Virtual Reality Software and Technology (VRST '22), Nov. 29–Dec. 1, 2022, Tsukuba, Japan. ACM, New York, NY, USA.

POSTER PRESENTATIONS

Conference Poster Presentations

“Smartphone Stories: Experiences of Blind and Low Vision Older Adults in Acquiring a Smartphone,” DIS 2023.

“Augmented Reality Patient-Specific Registration for Medical Visualization,” VRST 2022 – virtual.

“Virtual Human Gesture Prediction Using Machine Learning,” Grace Hopper Celebration. Oct. 2017.

Other Poster Presentations

“Mixed Reality Privacy Data Visualization of Internet of Things Devices,” presented in collaboration with Jad Al Aaraj. ProperData Annual Symposium. Irvine, CA, Dec. 1, 2022.

“Symptom Search: Predicting Symptom and Product Correlations using FDA Adverse Effects Reports,” presented in collaboration with Kelly Wesley, Angelina Poole, and Neesha Godbole. SCU University Honors Program honors thesis poster session. Spring 2018.

“Exposing Privacy Risks on Social Media,” SCU Engineering Research Showcase. Spring 2017.

TEACHING EXPERIENCE

Teaching Assistant, UCI, Computer Science				2018 – 2023
Spring	2023	ICS 33	Intermediate Programming	
Winter	2023	COMPSCI 141	Concepts in Programming Languages	
Spring	2022	ICS 46	Data Structure Implementation and Analysis	
Winter	2022	COMPSCI 116	Computational Photography and Vision	
Fall	2021	COMPSCI 111	Digital Image Processing	
Spring	2021	COMPSCI 118	Introduction to Virtual Reality	
Winter	2021	COMPSCI 112	Computer Graphics	
Fall	2020	COMPSCI 141	Concepts in Programming Languages	
Spring	2020	COMPSCI 111	Digital Image Processing	
Winter	2020	COMPSCI 143B	Projects in Operating Systems	
Winter	2019	COMPSCI 143A	Principles of Operating Systems	
Fall	2018	COMPSCI 141	Concepts in Programming Languages	
Reader, UCI, Computer Science				2019
Fall	2019	COMPSCI 143B	Projects in Operating Systems	
Spring	2019	COMPSCI 143A	Principles of Operating Systems	

AR/VR Course and Workshop Materials

Summer 2019

- I was funded by the UCI Institute for Virtual Environments and Computer Games (IVECG) to develop course plans, syllabi, assignments, tests, and slides for AR and VR courses for use at UCI. This led to the creation of the UCI course COMPSCI 118 Introduction to Virtual Reality, for which I was a Teaching Assistant at its inception in Spring 2021.
- We also planned and created tutorials and materials for a 3-day workshop on VR for students who want to learn about VR outside of the quarter long course [OTA.1].

Other Teaching Activities

- [OTA.7] “Navigating College as a BLV College Student” panel moderator. Accessing STEM in Higher Education Visit Day. UCI, May 3, 2024.
- [OTA.6] “Smartphones for Older Adults with Vision Loss.” In collaboration with Cameron Cassidy and Stacy Branham. Dayle McIntosh Center, Irvine, CA. Online virtual event. August 30, 2023.
- [OTA.5] “RealSAM Pocket for Older Adults with Vision Loss.” In collaboration Cameron Cassidy and Stacy Branham. Dayle McIntosh Center, Irvine, CA. Online virtual event. June 14, 2023.
- [OTA.4] “MiniVision2+ for Older Adults with Vision Loss.” In collaboration Cameron Cassidy and Stacy Branham. Dayle McIntosh Center, Irvine, CA. Online virtual event. April 12, 2023.
- [OTA.3] “BlindShell Classic 2 for Older Adults with Vision Loss.” In collaboration with Yoonha Cha and Stacy Branham. Dayle McIntosh Center, Irvine, CA. Online virtual event. March 1, 2023.
- [OTA.2] “What’s It Like to Be a Professor?” In collaboration with Stacy M. Branham and Cameron Cassidy. Loma Ridge Elementary School, Irvine, CA, May 5, 2023.
- [OTA.1] “VR Worlds Workshop” In collaboration with Ali Rostami and Aditi Majumder. UCI, January 10-12, 2020.
To teach Unity skills, I taught workshop attendees how to build a simple game in Unity from scratch. Attendees learned how to set up the Unity environment, create objects, write scripts for various game components, test, and build the game for release.

SERVICE

Conference Paper Reviewer

2023	ACM CHI Conference on Human Factors in Computing Systems 2024
2023	ACM Designing Interactive Systems (DIS 2023)
2022, 2023	IEEE Global Humanitarian Technology Conference (GHTC)

University Community Engagement

Paint Night Instructor – UCI Graduate Housing Community	2020 – 2023
Paint Night Instructor – Informatics Graduate Student Association	Winter 2024
ACM-W SCU Chapter board member: Secretary, Programs Chair, Treasurer	2015 – 2018

Volunteering

Accessing STEM in Higher Education Visit Day Fall 2023 – Spring 2024
Assisted in planning and coordinating a visit day on May 3, 2024 for blind or low vision high school students and their educators to come to UCI to learn about accessing STEM in higher education. I also moderated a panel during the visit day [OTA.7].

Webinars: Phones for Older Adults with Vision Loss January 2023 – Summer 2023
The Dayle McIntosh Center
Designed and presented a series of four webinars for the Dayle McIntosh Center to inform their consumers of mobile phones made for people with visual impairments [OTA.3 - 6].

1. BlindShell Classic 2. We talked about key features and presented demos of how to navigate the menus, make phone calls, send text messages, and use NFC object tagging.
2. MiniVision2+. We discussed the built-in vision aids and presented demos of those as well as features like calling and texting.
3. RealSAM Pocket. We covered voice navigation and other phone features.
4. In the fourth webinar we compared the 3 phones above as well as the iPhone.

Sighted/Human Guide Spring 2023, 2024
Volunteered as a Sighted/Human Guide at the CSUN Assistive Technology Conference

RELATED EXPERIENCE

Related Graduate Coursework:

Informatics

Social Analysis of Computing, Accessible Interaction, Qualitative Research Methods, Research Methods for Informatics, User Interface Design & Evaluation, Intro to Ubiquitous Computing, Quantitative Research Methods

Computer Science



Mobile Data Privacy, Intro to Artificial Intelligence (AI), Intro to Optimization, Distributed Systems, Natural Language Processing, Visual Computing, Parallel Computing, AI in Biology and Medicine, Computer Graphics and Visualization, Intro to Visual Perception, Data Structures

Related Undergraduate Coursework:

Computer Science and Engineering

Computer Networks, Algorithms, Web Programming, Machine Learning, Computer Architecture, Software Engineering, Programming Languages, Compilers, Intro to 3D Animation and Modeling, Operating Systems

Workshops and Other Courses:

<i>CRA-WP Grad Cohort for Women</i>	April 2024
<i><u>AccessibiliTrees Badging Program, UCI</u></i>	2022 – 2023
Growing an Accessibility Forest. 3-phase badging program, Canvas course.	
 <i>Zot Sprout</i>	Fall 2022
 <i>Anteater Sapling</i>	Fall 2023
<i>Student Success Mentor Training, Mentor Collective</i>	Summer 2023
<i><u>Management Beyond the Classroom Certificate, UCI</u></i>	Spring 2021
<i><u>Mentoring Excellence Program Certificate, UCI</u></i>	Winter 2021
<i><u>2nd ACM Europe Summer School on Data Science</u></i>	July 12-18, 2018

PROFESSIONAL AFFILIATIONS

SIGCHI, SIGACCESS	2023 – Present
ACM, ACM-W	2015 – Present
Tau Beta Pi	2017 – Present
Upsilon Pi Epsilon	2018 – Present
Order of the Engineer	2018 – Present