Frank Liu

I am a Ph.D. Student at Arizona State University, advised by Robert LiKamWa in the Meteor Studio. I am interested in enhancing human computer interaction experiences through mixed reality and machine learning, advancing education and encouraging overall health and wellness. I enjoy working on projects that incorporate my diverse skillset in signal processing, physical prototyping, machine learning and human-computer interaction.

PhD Candidate
Electrical, Computer & Energy Engineering
Arizona State University
Tempe, AZ

Website
fwliu1.github.io

Email
fwliu1@asu.edu

EDUCATION

PhD 2018 - Present	Computer Engineering, Arizona State University Advisor: Robert LiKamWa
BS 2014 - 2018	Electrical Engineering, University of Washington Advisor: Hanchuan Li, Shwetak Patel
Summer 2020	Lean Six Sigma Green Belt
Summer 2016	University of California, Berkeley Courses taken: Python and Big Data, Biostatistics

SELECT PEER-REVIEWED PUBLICATIONS

P4 *Coordinate: A spreadsheet-programmable augmented reality framework for immersive map-based visualizations*
Aashiq Shaikh, Linda Nguyen, Alireza Bahremand, Hannah Bartolomea, **Frank Liu**, Van Nguyen, Derrick Anderson and Robert LiKamWa.
Special Session Paper: International Conference on Artificial Intelligence & Virtual Reality (AIVR '19), San Diego, California

P3 *SoberComm: Exploring the Feasibility of Facilitating Alcohol Dependent Patients to Improve Family Communication using Mobile Phones*
Chuang-Wen You, Hung-Yeh Lin, Yaliang Chuang, Yi-Ching Huang, Jui-Ting Tsai, Shan Jean Wu, Chia-Hua Kuo, Ming-Chyi Huang, **Frank Wencheng Liu**, Jane Yung-Jen Hsu, Hui-Ching Wu.
ACM Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT) September 2019

P2 *SWISH: A shifting-weight interface of simulated hydrodynamics for haptic perception of virtual fluid vessels*
Shahabedin Sagheb, **Frank Wencheng Liu,** Alireza Bahremand, Assegid Kidane, Robert LiKamWa
ACM UIST 2019, New Orleans, Louisiana

P1 *A Spatial Audio System for the Internet-of-Things*
Frank Liu, Robert LiKamWa
Demo: Hotmobile 2019, Santa Cruz, California
Awarded: NSF Student Travel Grant

HONORS & AWARDS

Dean's Fellowship, Arizona State University
- Awarded to top 4% of admitted graduate students with significant leadership and research capabilities

Peter E. Crouch Excellence Fund, 2020-2021, Arizona State University
Ira A. Fulton Fellowship, 2019-2020, Arizona State University
Herbold Foundation Fellowship, 2019-2020, Arizona State University
Engineering Graduate Fellowship, 2019-2021, Arizona State University

Priscilla and Melvin Wilson Endowed Scholar, University of Washington
Electrical Engineering Departmental Honors
IEEE HKN Honors Society, University of Washington
- Scholastic achievement in the top 30% of graduating class

Husky Leadership Certificate, University of Washington

WORK EXPERIENCE

Summer 2022	OPPO Research, Pal Alto, California Research Intern Developing state-of-the-art gesture recognition for smartwatch applications
Summer 2020	Mochi Fresh, Tempe, Arizona Independent Consultant Utilizing DMAIC, I developed workflow optimizations to reduce restaurant variability and waste. Through my contributions, Mochi Fresh nearly doubled revenue and halved drink making times.
Summer 2019	Clobotics, Bellevue, Washington Computer Vision and Machine Learning Research Intern. Shipped an end to end price tag decoding system for price and barcode reading for both android and GCP Created and labeled US retail price tag dataset for training and testing.
Summer 2018	National Taiwan University - IoX Center, Gongguan, Taiwan Research Intern. Mentor: Professor Bing You Award of Excellence: Significant contributions in shipping android application SoberComm, allows alcohol dependent individuals and their family members to monitor alcohol usage.
Spring 2018	Roxy Device, Seattle, Washington Startup Intern. Lead generation and public outreach for customer acquisition. Built, assembled, and QA tested Roxy Device hardware systems.
Winter 2017	Microsoft, Redmond, Washington Consultant. Created labs, lessons and course content for the “Introduction to Device Programming” EDX (MICROSOFT COURSE) [DEV295X] using Microsoft’s IOT Pack for Raspberry Pi for audience of thousand+ students.

TEACHING EXPERIENCE

Arizona State University	Fall 2022: Co-Instructor for AME551, "Designing Extended-Reality Experiences" Fall 2019: Teaching Assistant for AME 494, "Musical Microprocessors" Spring 2019: Teaching Assistant for AME 394, "Introduction to Mixed Reality"
University of Washington	Fall 2016, Spring 2017, Spring 2018: Grader and Teaching Assistant for EE215, "Introduction to Circuits"
Coding with Kids	Spring 2017, Classroom Instructor Taught coding course curriculum for scratch at local elementary schools.

SERVICE

Volunteer	TEI 2019
Mentor	Summer 2019, Advanced Robotics at the University of Washington Summer 2019, Hacklodge Seattle
Member	Fall 2017 – Spring 2018, The College of Engineering Student Advisory Council Interviewed students and faculty about mental health on campus and prepared a recommendation report

INVITED TALKS

April 2022	Digital Culture Speaker Series: A metaverse you can feel, building haptics for mixed reality
Scholar-Donor Recognition 2018	From my exemplary leadership and service on campus, I was personally invited by Michael Bragg, Dean of the College of Engineering, as a speaker for the 2017-2018 Scholar-Donor Recognition Luncheon.

LEADERSHIP

TedXASU Organizing Team Spring 2019	Event with 1000+ tickets sold. Advised the development for the TedxASU application on android and iOS. Assisted in speaker selection, providing insights to the rest of the organizing team. Served in full capacity for event setup and takedown
Sunhacks Organizing Team Fall 2018	Lead marketing campaigns selling out tickets for 300+ participants Organized the largest hackathon in Phoenix Area; Sunhacks, ASU's 36-hour hackathon
Advanced Robotics at the University of Washington Spring 2017 – Summer 2018	Annotated meetings and weekly sprints coordinating 90 members Raised over 18,000 in funding through philanthropy efforts and sponsorships Refiller Robot Lead; Designed and conducted CAD reviews; wrote embedded software (C, C++, Arduino) for robot control systems Summer 2018 Placed 3rd in International Regionals| Summer 2017 Placed 31st out of 241 at International DJI Robomasters competition in Shenzhen, China

REFERENCES

Robert LiKamWa	likamwa@asu.edu
Shwetak Patel	shwetak@cs.washington.edu