

# Xiaoying Yang

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## Overview

**Summary:** With a multidisciplinary background in research and engineering, I specialize in designing and prototyping interactive systems and frameworks by bringing together software and electronics. I demonstrate and evaluate these systems through theoretical analysis, real-time end-to-end pipelines and user studies. I am passionate about enabling physical intelligence through practical solutions that connect technology to real-world applications. As a quick learner and creative maker, I thrive in collaborative environments and enjoy sharing knowledge to spark team growth and innovation.

**Domains:** Human Computer Interaction (HCI), Sensing, Internet-of-Things (IoT), Wearables, Robotics, Autonomous Cars

**Expertise:** Signal & Image Processing, Applied Machine Learning & AI, Interactive System Design, Rapid Prototyping, Dataset Engineering, Embedded Systems, Application Development, Technical Writing & Presentation

## Education

**University of California, Los Angeles (UCLA)**

September 2021 – Present

Ph.D. in Electrical and Computer Engineering

Advisor: [Yang Zhang](#)

**Tongji University, Shanghai**

September 2015 – July 2020

Bachelor of Engineering in Electrical Engineering and Automation (Honors)

## Professional Experience

**UCLA, Human-Centered Computing & Intelligent Sensing Lab**

June 2021 - Present

Research Assistant, Advisor: [Yang Zhang](#)

Los Angeles, CA, USA

Topic: Designing Human-Object Interaction As Computational Fuel

- Ongoing research: wearable AI-powered human dynamics estimation for health assessment
- Led research on digitizing everyday hand-object interactions for interactive wearable, IoT, and AR systems
- Led research on mmWave backscatter for human activity sensing with spatiotemporal machine learning
- Results: 7 first-authored publications in top venues, Distinguished Master's Thesis Research Award

**Keysight Technologies, Communication Solution Group**

June 2024 - December 2024

AI/ML R&D Intern, Manager: [Balaji Raghothaman](#)

Santa Rosa, CA, USA

Topic: mmWave Joint Communication and Sensing

- Implemented signal denoising and synthesis through target and channel feature disentanglement
- Designed signal processing pipelines, trained and deployed machine learning models for sensing applications
- Results: major contributor for three [demos](#) at conferences

## Publications

Xiaoying Yang, Qian Lu, Jeeun Kim and Yang Zhang. 2025. LuxAct: Enhance Everyday Objects for Visual Sensing with Interaction-Powered Illumination. In Proceedings of the 38th Annual ACM Symposium on User Interface Software and Technology (Accepted, UIST'25) [To Appear]

Vivian Shen<sup>†</sup>, Xiaoying Yang<sup>†</sup>, Chris Harrison and Yang Zhang. 2025. Hapt-Aids: Self-Powered, On-Body Haptics for Activity Monitoring. In Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (<sup>†</sup>Equal Contribution, Conditionally Accepted, IMWUT'25) [To Appear]

Qian Lu, Xiaoying Yang, Xue Wang, Jacob Sayono, Yang Zhang, and Jeeun Kim. 2025. LumosX: 3D Printed Anisotropic Light-Transfer. In Proceedings of the 2025 CHI Conference on Human Factors in Computing Systems (CHI'25) [DOI]

Xiaoying Yang, Jacob Sanoyo, Jess Xu, Yang Zhang. 2024. Interaction-Power Stations: Turning Environments into Ubiquitous Power Stations for Charging Wearables. 2024 CHI Conference on Human Factors in Computing Systems (CHI '24, Late-Breaking Work) [DOI][VIDEO]

Xiaoying Yang, Xue Wang, Gaofeng Dong, Zihan Yan, Mani Srivastava, Eiji Hayashi, and Yang Zhang. 2023. Headar: Sensing Head Gestures for Confirmation Dialogs on Smartwatches with Wearable Millimeter-Wave Radar. In Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT'23) [DOI][VIDEO]

Xiaoying Yang, Jacob Sanoyo, Yang Zhang. 2023. CubeSense++: Smart Environment Sensing with Interaction-Powered Corner Reflector Mechanisms. In Proceedings of the 36th Annual ACM Symposium on User Interface Software and Technology (UIST '23) [DOI] [VIDEO]

Xiaoying Yang, Jacob Sayono, Jess Xu, Jiahao "Nick" Li, Josiah Hester, and Yang Zhang. 2022. MiniKers: Interaction-Powered Smart Environment Automation. In the Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT '22) [DOI]

Siyou Pei, Pradyumna Chari, Xue Wang, Xiaoying Yang, Achuta Kadambi, and Yang Zhang. 2022. ForceSight: Non-Contact Force Sensing with Laser Speckle Imaging. In Proceedings of the 35th Annual ACM Symposium on User Interface Software and Technology (UIST '22) [DOI] [VIDEO]

Xiaoying Yang, and Yang Zhang, CubeSense: Wireless, Battery-Free Interactivity through Low-Cost Corner Reflector Mechanisms. 2021 CHI Conference on Human Factors in Computing Systems (CHI '21, Late-Breaking Work) [DOI]

## Skills

Programming Languages	Python, C/C++, C#, MATLAB, JavaScript
Frameworks & Libraries	PyTorch, TensorFlow, ONNX, Unity, OpenCV, OpenSim
Hardware Design & Prototyping	Eagle PCB, Fusion 360, Arduino, ESP32, nRF52, Raspberry Pi
Platforms & Systems	Linux, Android, iOS, Oculus Quest

## Related Courses

Advanced Neural Network and Deep Learning	GAN, Diffusion Models, Transformers, LLM
Large Scale Data Mining	Classification, Clustering, Graphical Model
Large Scale Social and Complex Networks	Predictive Models, Recommendation Systems
Engineering Interactive Systems	Machine Learning, Usability Study, AR/VR, Unity
Networked Embedded Systems	Hardware, Sensor Sampling and Processing
Internet of Thing: Connectivity and Sensing	Wireless Signal Concepts, Digital Signal Processing
Artificial Intelligence On Chip	Dataflows, ML Accelerators

## Honors & Awards

Distinguished Master's Thesis Research Award	UCLA ECE	2024
Special Recognitions for Outstanding Reviews	IMWUT	2023-2024
Travel Award	Ubicomp	2023
Travel Scholarship	UIST	2022
Honorable Mention Award for ForceSight Demo	UIST	2022
Graduate Dean's Scholar Award	UCLA	2021
Outstanding Undergraduate	Shanghai	2020

## Service

Subcommittee Chair Assistant	CHI	2025
Reviewer	UIST	2022-2025
Reviewer	CHI	2023-2025
Reviewer	IMWUT	2023-2024

## Teaching Experience

ECE ENG100 Electrical and Electronic Circuits	Circuit Theory	UCLA, 2025
ECE 209AS Engineering Interactive Systems	Machine Learning, Unity	UCLA, 2022
Open-Source Hardware and Programming	Arduino, Raspberry Pi	Tongji, 2020