Haofan Lu

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404 Westwood Plaza, ENG VI Room 497, Los Angeles, CA 90095

Technical Expertise

- Differentiable Simulation, Machine Learning, Signal Processing, AI for Wireless Network

Education

University of California, Los Angeles Sep 2021 – Jun 2026 (Expected)

PhD in Computer Science

- Advisor: Professor Omid Abari — Intelligent Connectivity (ICON) Group
- **Thesis Project:** AI-assisted Integrated Sensing and Communication for NextG Wireless Networks

University of Illinois at Urbana-Champaign Sep 2017 – Jun 2021

B. S. in Electrical Engineering GPA: 3.88

- Thesis Advisor: Professor Romit Roy Choudhury
- Thesis Project: Indoor Localization with the Assistance of Ultrasonic Beacons

Zhejiang University Sep 2017 – Jun 2021

B. Eng. in Electrical Engineering and Automation GPA: 3.94

- Capstone: An on-bike crowd-sourcing urban air-quality monitoring system (**Dean's Best Social Impact Award**)

Selected Honors & Awards

Amazon AI Fellowship [Link] 2024

Qualcomm Innovation Fellowship [Link] 2024

Industry Experience

Qualcomm Technology - Wireless System R&D Jun 2025 – Sep 2025

- **Project:** Optimizing E2E Application Latency of Multipath-QUIC for 6G Multi-RAT Networks.
- Proposed and developed a novel scheduling algorithm to achieve 24% latency reduction in real-world networks.

Hewlett Packard Labs - Networking and Distributed Systems Lab Jun 2024 – Sep 2024

- **Project:** Seamless Private 5G WiFi Convergence through Continuous Client Positioning.
- Developed a USRP-based 5G localization platform to support location-informed proactive low-latency handover.

Samsung Research America - Standard and Mobility Innovation Lab Jun 2023 – Sep 2023

- **Project:** WiFi-based Velocity Estimation and Tracking for Ambient Intelligence.
- Developed an indoor device-free tracking system based on commercial WiFi devices.

Selected Publications

- [**Under submission**] Haofan Lu, Yadi Cao, Wanghao Yi, Omid Abari. "mmDiff: A Noise-Robust Differentiable Ray-Tracing Framework for mmWave Scene Calibration and Channel Prediction".
- [**ICML'24**] Haofan Lu, Christopher Vattheuer, Baharan Mirzasoleiman, Omid Abari "NeWRF: A Deep Learning Framework for Wireless Radiation Field Reconstruction and Channel Prediction" **[Paper]** **[Poster]** **[Slides]** **[Code]**
- [**SIGCOMM'23**] Haofan Lu, Mohammad Hossein Mazaheri, Omid Abari, "A Millimeter Wave Backscatter Network for Joint Communication and Localization". Acceptance rate: 71/323 = 22.0%. **[Paper]** **[Slides]**
- [**HotMobile'24**] Tianxiang Li, Mohammad H. Mazaheri, Kalaivani Kamalakannan, Haofan Lu, Omid Abari "Can IoT Devices be Powered up by Future Indoor Wireless Networks?". **[Paper]** **[Slides]**
- [**IEEE IoT Journal'23**] Ali Abedi, Haofan Lu, Alex Chen, Charlie Liu, Omid Abari, "WiFi Physical Layer Stays Awake and Responds When Should Not". IF: 10.6. **[Paper]**
- [**HotNets'22**] Haofan Lu, Tianxiang Li, Reza Rezvani, Ali Abedi, Omid Abari, "Bringing WiFi Localization to Any WiFi Devices". Acceptance rate: 32/104 = 30.8%. **[Paper]** **[Slides]**

Technical Skills

- Languages: Python, MATLAB, C/C++
- Frameworks: PyTorch, Tensorflow, DrJit, Sionna, Open5GS, OpenAirInterface5G, ESP-IDF