JIALIN LIU

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RESEARCH INTERESTS

My research vision is to create cost-effective sensing systems for mobile and IoT devices, enabling innovative applications across diverse fields. My interests span wireless sensing, networking, mobile computing, smart health, and human-computer interaction.

EDUCATION

Duke University, Durham, NC 2022–2023
Doctoral student in Electrical and Computer Engineering
Advisor: Prof. Yiran Chen and Prof. Tingjun Chen (co-advise)
Completed 6 credits of advanced coursework; voluntarily withdrew to support the arrival of two children
Recipient of the Duke ECE Diversity Award

Dalian University of Technology, Dalian, China 2017–2022
Ph.D. in Software Engineering
Advisor: Prof. Lei Wang
Dissertation: The Research on Acoustic-Based Passive Sensing Methods on Smart Devices
Awarded ACM Dalian Doctoral Dissertation Award for excellence in research

Dalian University of Technology, Dalian, China 2015–2017
M.Eng. in Software Engineering

Dalian University of Technology, Dalian, China 2011–2015
B.Eng. in Software Engineering

ACADEMIC EXPERIENCE

University of Massachusetts Amherst, Amherst, MA 2019–2022
Research Scholar, Manning College of Information and Computer Sciences
Advisor: Prof. Jie Xiong

- Developed cost-effective human-computer interaction systems, including **BlinkListener**, the first system to detect eye blinks using acoustic signals
- Advanced the understanding of acoustic sensing on moving devices with projects like **SonicBot**, a mobile acoustic sensing robot prototype, demonstrating significant potential for at-home smart healthcare applications

Dalian University of Technology, Dalian, China 2015–2019
Research Assistant, Wireless Lab for Networking and Applications (WiLNA)
Advisor: Prof. Lei Wang

- Conducted research on human activity sensing and recognition using WiFi signals to enhance understanding of human behaviors and activities in smart home environments

SELECTED PUBLICATIONS

[1] D. Li, **J. Liu**, S. I. Lee, and J. Xiong "Room-Scale Hand Gesture Recognition Using Smart Speakers" in *Proceedings of the 20th ACM Conference on Embedded Networked Sensor Systems* (**SenSys '22**), 2022

[2] **J. Liu***, D. Li*, L. Wang, F. Zhang, and J. Xiong, "Enabling Contact-free Acoustic Sensing under Device Motion" in *Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies* (**IMWUT/UbiComp '22**), 2022 (*Equal contribution)

[3] D. Li, **J. Liu**, S. I. Lee, and J. Xiong, "LASense: Pushing the Limits of Fine-grained Activity Sensing Using Acoustic Signals" in *Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies* (**IMWUT/UbiComp '22**), 2022

[4] Z. Gao, A. Li, D. Li, **J. Liu**, J. Xiong, Y. Wang, B. Li, and Y. Chen, "MOM: Microphone based 3D Orientation Measurement" in *Proceedings of the 20th International Conference on Information Processing in Sensor Networks* (**IPSN '22**), 2022

[5] **J. Liu**, D. Li, L. Wang, and J. Xiong, "BlinkListener: "Listen" to Your Eye Blink Using Your Smartphone" in *Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies* (**IMWUT/UbiComp '21**), 2021

[6] D. Li, **J. Liu**, S. I. Lee, and J. Xiong, "FM-track: pushing the limits of contactless multi-target tracking using acoustic signals" in *Proceedings of the 18th Conference on Embedded Networked Sensor Systems* (**SenSys '20**), 2020

[7] **J. Liu**, L. Wang, J. Fang, L. Guo, B. Lu, and L. Shu, "Multi-Target Intense Human Motion Analysis and Detection Using Channel State Information", *Sensors*, vol. 18, no. 10, pp. 3379, Oct. 2018.

[8] **J. Liu**, L. Wang, L. Guo, J. Fang, B. Lu, and W. Zhou, "A Research on CSI-based human Motion Detection in Complex Scenarios" in *IEEE 19th International Conference on e-Health Networking, Applications and Services* (**Healthcom '17**), 2017

Additional Publications Available Upon Request.

PROFESSIONAL SERVICES

Reviewer, ACM IMWUT/UbiComp	2023, 2024
Reviewer, IEEE Transactions on Mobile Computing (TMC)	2022, 2023
Shadow Program Committee, ACM SenSys	2022
Reviewer, ACM ISWC	2022

HONORS & AWARDS

ACM Dalian Doctoral Dissertation Award	2023
Duke ECE Diversity Award	2022
CSC Scholarship, China Scholarship Council	2019
China National Scholarship of Graduates	2015
Mitsubishi Chemical Scholarship	2013