

Dong Li

PH.D. CANDIDATE

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Research Interests

I am broadly interested in building novel wireless systems to enable new applications, including human-computer interaction, mobile health, and smart IoT. My current research focuses on acoustic sensing, which is an exciting emerging research area in mobile and ubiquitous computing.

Education

University of Massachusetts Amherst (UMass Amherst)

PH.D. IN COMPUTER SCIENCE

Advisor: Prof. Jie Xiong

Amherst, Massachusetts

In Progress

Shanghai Jiao Tong University (SJTU)

M.ENG. IN SOFTWARE ENGINEERING

Advisor: Prof. Dong Wang

Shanghai, China

Sept. 2015 - Mar. 2018

University of Electronic Science and Technology of China (UESTC)

B.S. IN COMPUTER SCIENCE AND TECHNOLOGY

Outstanding Undergraduate Award

Chengdu, China

Sept. 2011 - Jul. 2015

Publications

Experience: Practical Problems for Acoustic Sensing

DONG LI*, SHIRUI CAO*, SUNGHOON IVAN LEE, JIE XIONG (*EQUAL CONTRIBUTION)

The 28th Annual International Conference On Mobile Computing And Networking (**MobiCom**), 2022

Enabling Contact-free Acoustic Sensing under Device Motion

JIALIN LIU*, **DONG LI***, LEI WANG, FUSANG ZHANG, JIE XIONG (*EQUAL CONTRIBUTION)

Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (**IMWUT**), 2022

MOM: Microphone based 3D Orientation Measurement

ZHIHUI GAO, ANG LI, **DONG LI**, JIALIN LIU, JIE XIONG, YU WANG, BING LI, YIRAN CHEN

The International Conference on Information Processing in Sensor Networks (**IPSN**), 2022

LASense: Pushing the Limits of Fine-grained Activity Sensing using Acoustic Signals

DONG LI, JIALIN LIU, SUNGHOON IVAN LEE, JIE XIONG

Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (**IMWUT**), 2022

BlinkListener: "Listen" to Your Eye Blink Using Your Smartphone

JIALIN LIU, **DONG LI**, LEI WANG, JIE XIONG

Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (**IMWUT**), 2021

FM-Track: Pushing the Limits of Contactless Multi-target Tracking using Acoustic Signals

DONG LI, JIALIN LIU, SUNGHOON IVAN LEE, JIE XIONG

Proceedings of the 18th Conference on Embedded Networked Sensor Systems (**SenSys**), 2020

Unobtrusive and Robust Human Identification using COTS RFID

QIAN ZHANG, RUN ZHAO, **DONG LI**, DONG WANG

Computer Networks, 2020

SGRS: A Sequential Gesture Recognition System using COTS RFID

BO CHEN, QIAN ZHANG, RUN ZHAO, **DONG LI**, DONG WANG

2018 IEEE Wireless Communications and Networking Conference (**WCNC**), 2018

RFree-ID: An Unobtrusive Human Identification System Irrespective of Walking Cofactors using COTS RFID

QIAN ZHANG, **DONG LI**, RUN ZHAO, DONG WANG, YUFENG DENG, BO CHEN

2018 IEEE International Conference on Pervasive Computing and Communications (**PerCom**), 2018

TagController: A Universal Wireless and Battery-free Remote Controller using Passive RFID Tags

DONG LI, FENG DING, QIAN ZHANG, RUN ZHAO, JINSHI ZHANG, DONG WANG

Proceedings of the 14th Conference on Mobile and Ubiquitous Systems: Computing, Networking and Services (**MobiQuitous**), 2017

RFlow-ID: Unobtrusive Workflow Recognition with COTS RFID

JINSHI ZHANG, QIAN ZHANG, **DONG LI**, RUN ZHAO, DONG WANG

Proceedings of the 14th Conference on Mobile and Ubiquitous Systems: Computing, Networking and Services (**MobiQuitous**), 2017

Projects

Monitoring Personal Space using Self-designed Acoustic-based Wearables (On-going)

CO-DEVELOPER

- Implement a light-weight and miniaturized wearable prototype. (Working on the second version)
- Develop a series of algorithms to enable long-range human tracking and human-object differentiation.
- Employ machine learning algorithms to analyze the collected data to provide higher-level semantic information regarding the activities.

Contact-free Multi-target Tracking using Acoustic Signals

LEAD DEVELOPER

- Develop algorithms to enable contact-free multi-target tracking.
- Implement the proposed algorithms on the smart speaker and smartphone.

Long-range Fine-grained Activity Sensing using Acoustic Signals

LEAD DEVELOPER

- Develop algorithms to enable long-range fine-grained activity sensing.
- Implement three fine-grained activities, i.e., respiration monitoring, finger tapping and eye blink detection.

Sensing Hand Gestures using smart speakers

LEAD DEVELOPER

- Develop algorithms to enable room-scale hand gesture recognition.
- Implement the proposed algorithms on the smart speaker.

Honors & Awards

2022	Dr. Phil Bernstein Graduate Scholarship , UMass Amherst	USA
2017	Bosch Scholarship , Shanghai Jiao Tong University	China
2017	Best Paper Runner-up , MobiQuitous	Australia
2014	Google Excellence Scholarship , Google	China
2014	Outstanding Undergraduate Award , China Computer Federation (CCF)	China
2012	China National Scholarship , University of Electronic Science and Technology of China	China

Teaching

CS 240: Reasoning Under Uncertainty

UMass Amherst

TEACHING ASSISTANT

Fall 2021

- 325 students enrolled in course. Held office hours and weekly discussion sections.

CS 240: Reasoning Under Uncertainty

UMass Amherst

TEACHING ASSISTANT

Fall 2019

- 282 students enrolled in course. Held office hours and weekly discussion sections.

Outreach and Volunteer Activity

Proceedings of the 20th Conference on Embedded Networked Sensor Systems (SenSys), 2022

Boston, Massachusetts

SHADOW PROGRAM COMMITTEE

In Progress

- Write detailed and rigorous reviews for papers and attend the online discussion and PC meeting.

Proceedings of the 20th Conference on Embedded Networked Sensor Systems (SenSys), 2022

Boston, Massachusetts

WEB CHAIR

In Progress

- Collect conference updates and make sure that they are correctly presented on the conference website.

Undergraduate Independent Study

Amherst, Massachusetts

MENTOR

Fall 2021

- Provided mentorship and guidance to undergraduate students as they developed systems for acoustic sensing.

China National College Competition on Internet of Things

Wuxi, China

CO-ORGANIZER, VOLUNTEER

Jul. 2017 - Aug. 2017

- Organized and trained other volunteers to ensure that the competition ran smoothly.

Skills

Programming	C/C++; C#; Matlab; Python
Platform & Tools	PCB design; 3D printing; Micro-controller
Domain Knowledge	Signal processing; Acoustic sensing; Embedded system; Machine learning