Yuda Feng

College of Information and Computer Sciences, University of Massachusetts Amherst
Email: yudafeng@cs.umass.edu

RESEARCH INTERESTS

I am broadly interested in building novel wireless sensing and communication systems. My current research focuses on pervasive LTE/4G and 5G sensing, which enables national sensing on human, vehicle, agriculture, and environment. I also worked on ultra-low-power backscatter systems, facilitating large-scale concurrent IoT communication.

EDUCATION

University of Massachusetts Amherst Sept. 2019 - Present
Ph.D., Computer Science
Advisors: Prof. Jie Xiong and Prof. Deepak Ganesan
GPA: 3.92/4.00

Shanghai Jiao Tong University Sept. 2015 - Jun. 2019
B.S., Information Engineering
Advisors: Prof. Xiaohua Tian and Prof. Xinbing Wang
Outstanding Undergraduate Award

INDUSTRY EXPERIENCE

Samsung Research America, Plano, Tx Jun. 2023 – Dec. 2023
Research Intern, Standard and Mobility Innovation (SMI) Lab
Major contributor of WiFi-based whole-house human localization and body tracking system; sole contributor of Bluetooth-based direction finding, whole-house localization and tracking system; machine-learning based real-time tracking prototype platform.

PUBLICATIONS

Juexing Wang***, Yuda Feng*,** Guangjing Wang, Qiben Yan, Qingxu Jin, Robert C. Ferrier, Xiong Jie, Tianxing Li, "SoilCares: Towards Low-cost Soil Macronutrients and Moisture Monitoring Using RF-VNIR Sensing," in *Proc. ACM* ***MobiSys*****, 2024**. (*Equal contribution)

Yuda Feng, Yaxiong Xie, Deepak Ganesan, Jie Xiong, "LTE-based Low-cost and Low-power Soil Moisture Sensing," in *Proc. ACM* ***SenSys*****, 2022**.

Yuda Feng, Yaxiong Xie, Deepak Ganesan, Jie Xiong, "LTE-based Pervasive Sensing Across Indoor and Outdoor," in *Proc. ACM* ***SenSys*****, 2021**.

Minhao Cui, **Yuda Feng**, Qing Wang, Jie Xiong, "Sniffing Visible Light Communication Through Walls," in *Proc. ACM* ***MobiCom*****, 2020**. **Honorable Mention Award (3/384)**

Fengyuan Zhu, **Yuda Feng**, Qianru Li, Xiaohua Tian, Xinbing Wang, "DigiScatter: Efficiently Prototyping Large-scale OFDMA Backscatter Networks," in *Proc. ACM* ***MobiSys*****, 2020**.

Mohammad Rostami, Xingda Chen, **Yuda Feng**, Karthikeyan Sundaresan, Deepak Ganesan, "MIXIQ: Re-thinking Ultra-low Power Receiver Design for Next-generation On-body Applications," in *Proc. ACM* ***MobiCom*****, 2021**.

Renjie Zhao, Fengyuan Zhu, **Yuda Feng**, Siyuan Peng, Xiaohua Tian, Hui Yu, Xinbing Wang, "OFDMA-Enabled Wi-Fi Backscatter," in *Proc. ACM **MobiCom***, **2019**.

PATENTS

Yuda Feng, Rebal Jurdi, Guanbo Chen, Yuming Zhu, "WiFi-based whole-house localization" In submission

Fengyuan Zhu, **Yuda Feng**, Qianru Li, Xiaohua Tian, Xinbing Wang, "Frequency spectrum dynamic control method and system for OFDMA backscatter network," WO2021213553A2 Dec. 2021

Fengyuan Zhu, **Yuda Feng**, Qianru Li, Xiaohua Tian, Xinbing Wang, "Method and system for controlling backscatter circuit based on multi-subcarrier modulation," WO2021228279A1 Nov. 2021

Fengyuan Zhu, **Yuda Feng**, Qianru Li, Xiaohua Tian, Xinbing Wang, "Orthogonal frequency division multiple access-based backscatter system," WO2021223777A1 Nov. 2021

Renjie Zhao, Fengyuan Zhu, **Yuda Feng**, Xiaohua Tian, Xinbing Wang, "Backscatter system and method based on OFDMA technology," CN109412992A Jul. 2020

RESEARCH PROJECTS

LTE-based Low-cost and Low-power Sensing System
Lead developer
- Develop a light-weight LTE sensing tool and low-power mechanisms on a customized low-cost hardware platform
- Realize various sensing applications such as gesture and walking detection with GUI demonstration

Ultra-low-power Concurrent OFDMA Backscatter Communication Tag
Co-developer
- Develop PHY layer mechanisms to enable thousand-level concurrent communication
- FPGA programming to implement the mechanisms on ultra-low-power backscatter tags

PAPER REVIEMERS

- IEEE Transactions on Mobile Computing (TMC) 2023
- IEEE Transactions on Mobile Computing (TMC) 2022

HONORS & AWARDS

- **Honorable Mention Award** in MobiCom 2020 Sept. 2020
- Dr. Dave Lomet Graduate Scholarship Mar. 2022
- Mohan Graduate Scholarship Mar. 2021
- Outstanding Undergraduate Student of Shanghai Jiao Tong University Nov. 2016

TEACHING EXPERIENCE

- **Fall 2020:** COMPSCI 240 - Reasoning Under Uncertainty
- **Spring 2021:** COMPSCI 240 - Reasoning Under Uncertainty
- **Fall 2022:** COMPSCI 240 - Reasoning Under Uncertainty

SKILLS

Programming: C++, MATLAB, Python, VHDL, Verilog
Domain Knowledge: Wireless sensing, signal processing, FPGA programming, embedded system, sensor fusion