Hailan Zhang Shanbhag

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Area of Interest: Wireless sensing and communications, environmentalism

Education

École polytechnique fédérale de Lausanne — January 2023 – *present*
Ph.D., Computer and Communication Sciences
Advisor: Haitham Hassanieh

University of Illinois at Urbana-Champaign — August 2021 – December 2022
Master of Science, Electrical and Computer Engineering — GPA: 4.0./4.0
Advisor: Haitham Hassanieh

University of Illinois at Urbana-Champaign — August 2017 – May 2021
Bachelor of Science, Computer Engineering — GPA: 3.8./4.0

Skills

Languages: Python, MATLAB, C/C++, Verilog/SystemVerilog, x86
Software/Frameworks: Eagle, KiCad, mmWave Studio, CUDA
Spoken Languages: English, Mandarin Chinese

Research Experience

Graduate Research Assistant — August 2021 – December 2022
EPFL/UIUC, Prof. Haitham Hassanieh

Contactless Material Sensing with mmWave

- Created a system with Texas Instruments 77 GHz mmWave radar boards and applying machine learning techniques to accurately classify materials and objects.

Interference Mitigation

- Validating and running simulations for various radar interference mitigation techniques.

Senior Research Project & Thesis — August 2020 – May 2021
UIUC, Prof. Haitham Hassanieh

- Calibrated four 60 GHz Qualcomm phased array antennas to construct a 12x12 MIMO array for both a transmitter and receiver *(hardware acquired from the M-Cube project of UCSD)*.
- Measured beam patterns of the transmitter and receiver radios and prepared the hardware for future applications.

Undergraduate Research Assistant — May 2018 – May 2019

UIUC, Prof. Viktor Gruev

- Designed and fabricated a PCB for a Hamamatsu CMOS area image sensor realizing low-noise multi-spectral imaging for image-guided surgery and underwater polarization imaging.
- Began programming XEM7310 OpalKelly FPGA in Verilog to communicate with and process LVDS pixel data received from the image sensor.
- Communicated to the FPGA using OpalKelly's FrontPanel C++ API to interface through a PC.

Honors & Awards

Promise of Excellence Fellowship — August 2021 – May 2022
TI Women STEM Stars Scholarship — August 2017 – May 2021

Relevant Coursework

Random Processes, Signal Processing, Digital Communications, Wireless and Communication Networks, Machine Learning

Internships & Activities

Silicon Verification Intern — June 2019 – August 2019

Sunnyvale, CA, Microsoft

- Enhanced a UVM based verification IP by providing support for OCP VIPs.
- Created a translation layer from the AXI protocol to the OCP protocol, which was integrated into an inhouse verification IP.
- Integrated part of the translation layer via fully synthesizable code to reuse an inhouse AXI slave.