Zitong Lan

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Education

- **School of Engineering and Applied Science, University of Pennsylvania** — Philadelphia, USA
  Ph.D. in Electrical and System Engineering (Advisor: Mingmin Zhao) — *Aug. 2023 - Present*

- **Honors college(Chien-Shiung Wu College), Southeast University** — Nanjing, China
  B.Eng. in Electrical Engineering **GPA**: 3.96/4 **rank**: 3% — *Sep. 2019 - Jun. 2023*

Publications

- **Zitong Lan**, Chenhao Zheng, Zhiwei Zheng, Mingmin Zhao. NIRF: Physics-Guided Neural Impulse Response Field via Implicit Wave Propagation Modeling, *Under review*
- Yuechun Jiao, Jinlian Hu, **Zitong Lan**, Fusang Zhang, Jie Xiong et. al. Exploring quantum sensing for fine-grained liquid recognition, *Arxiv*
- Fusang Zhang, Beihong Jin, **Zitong Lan**, Zhaoxin Chang, Daqing Zhang, Yuechun Jiao, Meng Shi, Jie Xiong. Quantum Wireless Sensing: Principle, Design and Implementation, *Mobicom*'23
- Tengxiang Zhang, **Zitong Lan**, Chenren Xu, Yanrong Li, Yiqiang Chen. BLEselect: Gestural IoT Device Selection via Bluetooth Angle of Arrival Estimation from Smart Glasses, *IMWUT*'22.
- Zhenhao Ji, Yu Tian, Jifu Wang, Mingyuan Ding, Haoxin Wang, Yifan Chen, Jiahao Wen, **Zitong Lan**, Huiting Xu et. al. PCCR Based Wheelchair Control System, *IEEE Circuits and Systems Magazine*, 2021.

Research Experience

- **Quantum wireless sensing: principle, design and implementation** — *Aug. 2022 - May. 2023*
  UMass Amherst — Amherst, USA
  Remote Research Intern, advised by Prof. Jie Xiong and Fusang Zhang
  - Proposed the prototype of a new sensing modality employing Rydberg atoms as signal receiver. Presented its principles and design with sensitivity enhancement methods to achieve wireless sensing with super high SNR.
  - The system outperforms conventional RF sensing more than 10X in terms of sensing granularity and provide fine-grained application like using centimeter-wave to sense sub-millimeter vibration of a speaker. The system is also compatible with commodity RF devices like WiFi and enhance their sensing ability
- **Realizing Intermittent Computing on Arduino Platform** — *Oct. 2022 - Jan. 2023*
  University of California, Los Angeles — Los Angeles, USA
  Remote Research Intern, advised by Prof. Yang Zhang
  - Enabled intermittent computing (IC) programming on Arduino using non-volatile memory. Inserted checkpoints to program to make it restore the state from the latest checkpoint.
  - Implemented common physical computing applications in intermittent computing. Summarized problems in developing IC applications and called for future efforts in development tools to support IC.
- **BLEselect: IoT Device Selection via BLE AoA Estimation from Smart Glasses** — *May. 2021 - Aug. 2022*
  Institute of Computing Technology, Chinese Academy of Sciences — Beijing, China
  Research Intern, advised by Prof. Tengxiang Zhang
  - Proposed a natural, accurate, privacy-preserving IoT device selection system, which leverages the direction finding feature in BLE Protocol 5.0. The system supports three natural gestures (nodding, pointing and circling) of device selection
  - Designed a 5-element antenna array that fits on the frame of smart glasses, developed a device selection pipeline that uses light-weight SVM models in real-time to enable precise selection.

Honors and Awards

- Howard Broadwell Fellow from Upenn — *Mar. 2023*
- The Final Winner (1^{st}) in the 2019-2020 IEEE CASS Student Design Competition — *Sep. 2020*
- The Southeast University President Scholarship (2%) — *Fall 2020*
- The Second Award in the Chinese Mathematics Competition — *Nov. 2020*

Skills Summary

- **Programming languages**: Python, Matlab, C, C++, Verilog
- **Software**: Matlab, Gnu-Radio, LaTeX, Vivado