Zitong Lan

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Education

Honors college(Chien-Shiung Wu College), Southeast University Nanjing, China
- *B.Eng. in Information Engineering* **GPA**: 92.4(3.96/4) rank: 4/158 *Sep. 2019 - Jun. 2023*

Courses: Communication Systems, Digital Signal Processing, Digital and Analog Circuit, Very Large-Scale Integrated Circuit, Electromagnetic Fields and Waves

English Ability: Toefl: 104(speaking: 23)

Experience

Institute of Software, Chinese Academy of Sciences Beijing, China
- **Quantum Sensing: principle, design and application** *Aug. 2022 - Present*

Research Intern, advised by Prof. Jie Xiong(UMass Amherst) and Prof. Fusang Zhang

- Utilizing the capabilities of Rydberg Atoms as a full-band receivers to sense common RF signals, including 2.4GHz and 5GHz WiFi signal, 28GHz mmWave.
- Outperform the sensing limits of traditional RF signal method by 10 times and provide fine-grained sensing information like sound recovery, liquid recognition, vibration sensing and so on.

Institute of Computer Technology, Chinese Academy of Sciences Beijing, China
- **BLEselect: IoT Device Selection via BLE AoA Estimation from Smart Glasses** *May. 2021 - Present*

Research Intern, advised by Prof. Tengxiang Zhang

- Proposed a natural, accurate, privacy-preserving IoT device selection method, which leverages the direction finding feature in BLE Protocol 5.0 and improves the HCI experience for device selection.(submitted to IMWUT, revised version (Major) being reviewed)
- Designed a 5-element 2.4GHz antenna array that fits on the frame of smart glasses, developed a device selection pipeline that trains light-weight SVM models in real-time to enable precise selection(3m $>$ 90% accuracy).
- Implemented a prototype system ($< 10mW$) that supports three natural gestures of device selection, conducted extensive experiments and user studies (96.7% correctness).

School of Information Science and Engineering, Southeast University Nanjing, China
- **PCCR Based Wheelchair Control System** *May. - Oct. 2020*

Research Intern, advised by Prof. Chuan Zhang

- Designed the PCCR technology based functional wheelchair control system to help patients with severe disabilities to use eye movements to control wheelchair safely, effectively and naturally.
- Analyzed the real driving response and proposed a unique interaction method for users to control the locomotion of wheelchair and make phone call through opening, closing eyes, and gazing at one direction.
- Won the first place in the 2019-2020 IEEE CASS Student Design Competition

Selected Projects

- The Vision-Based Small Vehicle Development Implemented a small autonomous vehicle with STM32 chip to control motion and Raspberry Pi to recognize color, number and path. Led the control logical and code in C. Tech: C, Embeded System, Python, Raspberry Pi, OpenCV, TensorFlow. (Jun. - Aug. 2021)
- Analog Circuit Coursework Projects Designed several circuit project including light intensity indicator, triode amplifier circuit, audio amplifier, filtering circuit, and more. Tech: Circuit Implementation, Verilog, FPGA, Filter Design (Mar. - Jun. 2021)

Publications

- Magazine Zhenhao Ji, Yu Tian, Jifu Wang, Mingyuan Ding, Haoxin Wang, Yifan Chen, Jiahao Wen, Zitong Lan, Huiting Xu; Manqin Zhonget al., "**PCCR Based Wheelchair Control System [Society News]**," published in IEEE Circuits and Systems Magazine, Vol. 21, No. 3, Page 79-84, the thirdquarter 2021

Honors and Awards

- The Special Award(1^{st}) in the 2019-2020 IEEE CASS Student Design Competition *Sep. 2020*
- The Southeast University President Scholarship *Fall 2020*
- The Second Award in the Chinese Mathematics Competition *Nov. 2020*
- Third Award in the Electronics Design Contest of Southeast University *Jul. 2021*
- Second Award in the Physics Tournament of Southeast University *May. 2021*

Skills Summary

- Languages C++, C, Matlab, Python, Verilog
- Software Matlab, Gnu-Radio, Vivado