Liu(Zuguang Liu)

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Seeking for Electrical & Computer Engineering Summer Intership/Co-op
Citizenship: F1 with CPT (1 year) and OPT (1 year + 2 year STEM Extension)

EDUCATION

M.S. Electrical Engineering, Bradley University, USA — August 2023 - Now
Specialized in Robotics and Mechatronics — GPA 4.0/4.0

B.S. Electrical Engineering, University of Cincinnati, USA — August 2016 - May 2021
Mathematics and Embedded Systems minor, University Honors Program — GPA 3.9/4.0

SKILLS

Embedded Hardware	System design with MCU, circuit/firmware driver for sensors, actuators and robots
Embedded Programming	HAL and RTOS programming on platforms including PIC, AVR, STM32
Communication Interface	I2C, SPI, UART, Bluetooth, Zigbee, USB, Ethernet, CAN in signal and application layer
Circuit Design	Analog and digital circuit design, simulation, FPGA synthesis with VHDL and Verilog
Prototyping and Testing	On-board and PCB prototyping, developing test fixture and test automation scripts
Software Development	C/C++, Python, Git, Linux, Bash scripting, Qt & GTK GUI framework

EXPERIENCE

Graduate Research Assistant — Nov 2023 - Now
Advisor: Dr. Suruz Miah, Bradley University — *Peoria, IL*

- **Collaborative Robots for Human-Robot Interaction** Design, implement and validate control and navigation systems of Cobots from simulation to real environments
- **Pulmonary Acoustic Sensor Array** An IoT device capable of synchronously multiple channels of lung acoustics and remotely diagnosing with machine learning

Embedded Software Engineer — August 2021 - July 2023
L&T Technologies — *Peoria, IL*

- Maintained and troubleshoot embedded C firmware for Catepillar transmission Electronic Control Module (ECM)
- Maintained and develop automated testing framework for ECM firmware in a virtual simulated environment
- Developed feature-oriented test strategies and automation scripts for ECM firmware

Undergraduate Research Assistant — August 2019 - May 2021
Advisor: Dr. Anca Ralescu, University of Cincinnati — *Cincinnati, OH*

- Applied data analysis methods to spatio-temporal electroencephalographic (EEG) data for classification problem, and
- Machine learning techniques to detect human motor imagery intentions with post-processed data

Electrical Engineer (R&D Co-op) — June - August 2019
Ethicon Endo-Surgery Inc. — *Blue Ash, OH*

- Designed, assembled, and tested an embedded PCB for a prototype product
- Built test fixtures for NFC sensing technologies

Electrical Engineer Team Member — August 2019 - August 2021
rLoop - a global, crowdsourced engineering organization

- *Not-A-Boring-Competition* is run by the Boring Company that aims to build a novel tunnel boring system
- Designed a modified leader-follower control scheme with pure-pursuit algorithm for the proposed final design draft
- Design proposal selected with 11 other finalists among 390 competitors

OTHER PROJECTS

Adaptive Video Streaming System For Remote Control Develop dynamic adaptive streaming system for teleoperations over unpredictable network conditions using state-of-the-art technologies (Catepillar joint project, ongoing)

Modular Garden Monitoring System An embedded system that autonomously manages garden environment with friendly UI, modular design and wireless communication (Senior Capstone Project)

Hyperloop Competition Participated in the development of the levitation pod for the carrier vehicle