Liu(Zuguang Liu)

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Seeking for Electrical & Computer Engineering Full-Time Positions

Citizenship: F1 with 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

Signals and Systems	DSP, Frequency analysis, feedback control systems, PID controller, linear system theory
Embedded Hardware	System design with MCU, circuit/firmware driver for sensors, actuators and robots
Communication Interface	I2C, SPI, UART, Bluetooth, Zigbee, USB, Ethernet, CAN in signal and application layer
Circuit Design	Analog and digital circuit design, analysis and simulation, Verilog HDL on FPGA
Embedded Programming	Assembly for PIC on MPLAB, C for Atmel, FreeRTOS for ARM Cortex-M
Prototyping and Testing	On-board and PCB prototyping, developing test fixture and procedure, troubleshooting
Software Development	Git, Linux, C/C++, Python, MATLAB, SQLite database

EXPERIENCE

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

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

Brain Computer Interface (BCI) Research — August 2019 - May 2021
UC HCI Lab — *Cincinnati, OH*

- Apply data analysis methods to spatio-temporal electroencephalographic (EEG) data for classification problem
- Apply machine learning methods to detect human motor imagery intentions using post-processed data
- Assist on a multi-disciplinary robotic project that implements BCI, SLAM and NLP

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

- Designed, assembled, troubleshooted and tested a PCB for a prototype product
- Built test fixtures for NFC sensors using microcontrollers
- Documented implementation methods, testing procedure and test results

Electrical Engineer Team Member — August 2019 - now
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

PROJECTS

Neuromorphic Computing Research Developed an analog circuit system to simulate spiking neural signal

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 engineering of the levitation pod for the carrier vehicle. The system uses PID controller designed in Python and implemented with C into FreeRTOS.

UC Robotics Developed computer vision system for sensor fusion and decision making algorithms. Maintainer of the GitHub repository while in the team.