Liu(Zuguang Liu)

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Seeking for Robotics Engineering Internship/Co-op

EDUCATION

M.S. Electrical Engineering, Bradley University, USA   August 2023 - Now
Specialize 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 Systems	System design with MCU, interfacing mechatronic sensors, actuators and robot manipulators
Software Development	C/C++, Python, Git, Linux, Bash scripting, Tcl/Tk scripting, Qt & GTK GUI framework
Robotic Systems	Solving control and navigation problems in simulations (V-REP) and physical robots (with ROS)
Intelligent Systems	Theoretical understanding and practical usage of deep learning (PyTorch, TensorFlow), reinforcement learning (Stable-Baselines3), and computer vision (OpenCV, Scikit-Image)

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. First-author publications include
  - "Autonomous Networked Cobots: Challenges and Opportunities" submitted to IEEE Access
  - "Control and Navigation of Twin Cobots in Industrial Simulation Settings" in preparation for MECC 2024
- **SLAM for Indoor Sanitation Robot** Support the high-level implementation of SLAM for autonomous mobile robot with indoor sanitation tasks
- **Pulmonary Acoustic Sensor Array** Support the development of an IoT device capable of monitor multiple channels of lung acoustics simultaneously and remotely diagnosing with machine learning algorithms

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

- Maintained and troubleshoot embedded C firmware for Caterpillar 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 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 (Caterpillar sponsored 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