

ZIRUI LI

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EDUCATION

Georgia Institute of Technology

M.S. in Electrical and Computer Engineering

Cumulative GPA: 4.0/4.0

August 2025 - Anticipated May 2027

Atlanta, GA, U.S.

University of Rochester

B.S. in Electrical and Computer Engineering

Cumulative GPA: 3.95/4.0 - Department GPA: 4.0/4.0

Member of Tau Beta Pi - The Engineering Honor Society

August 2021 - May 2025

Rochester, NY, U.S.

RELEVANT COURSEWORK

- Power Electronics
- Power System Control & Operation
- Power System Protection
- Power IC Design
- Mechatronics & Embedded Systems
- Computer Architecture

PUBLICATIONS

- Santos, L., Li, Z., Peters, L., Bansal, S., & Bajcsy, A. Updating Robot Safety Representations Online from Natural Language Feedback. Accepted by ICRA 2025. (arXiv: <https://arxiv.org/abs/2409.14580v1>)

RESEARCH EXPERIENCE

Grid-Friendly Data Center

Supervisor: Prof. Santiago Carlos Grijalva, Georgia Tech

August 2025 – Present

Atlanta, GA, U.S.

- Evaluated the feasibility of mitigating data center load swings using a hybrid energy storage system (HESS)
- Investigated converter-grid interactions and stability considerations for converter-dominated data center loads

GaN Transistor Cryogenic Performance Test

Supervisor: Prof. Lukas Graber, Georgia Tech

August 2025 – Present

Atlanta, GA, U.S.

- Test the performance of a GaN Four Quadrant Switch Transistor's under cryogenic environment
- Designed a custom PCB using Altium and developed firmware for an STM32 to conduct the Double Pulse Test.

Dual-Mode Smart Control Vehicle (Undergraduate Senior Design)

Supervisor: Prof. Jack Mottley, University of Rochester

September 2024 – May 2025

Rochester, NY, U.S.

- Managed a 6-person team to develop a vehicle capable of both manual operation and autonomous control
- Implemented real-time firmware in C on STM32; developed closed-loop PID motor control for smooth maneuvering
- Built a glove interface with MPU 6050 for direction control
- Deployed YOLOv8 on NVIDIA Jetson Nano for onboard detection and tracking

Robot Safety from Language Feedback

Supervisors: Prof. Somil Bansal, Stanford University; Prof. Andrea Bajcsy, CMU

May 2024 – September 2024

Rochester, NY, U.S.

- Built a Python pipeline, converting natural language + onboard perception into online safety constraints for navigation
- Benchmarked multiple VLMs and integrated OWLv2 to the pipeline
- Integrated MPPI planning with a Hamilton–Jacobi reachability safety filter to enforce constraints during control in simulation
- Co-authored and presented a paper at ICRA 2025

TEACHING EXPERIENCE

Mechatronics and Embedded Systems

Teaching Assistant

August 2024 – December 2024

Rochester, NY, U.S.

- Holding both online and face-to-face office hours to make sure students get the help they need
- Provided timely feedback to students by grading 100+ assignments or exams per week
- Summarize and report students' feedback to the professor

INTERNSHIP EXPERIENCE

NR Electric

Embedded System Engineer Intern

July 2022 – August 2022

Nanjing, Jiangsu, China

- Served as an embedded system engineer in a team that was developing a Delayed Fluorescence-based thermometer
- Designed and programmed C-based software that interfaces with an optical sensor, applies noise reduction techniques to optical data, and converts the data to temperature values
- Achieved the performance with just a $\pm 2^{\circ}\text{C}$ error, exceeding the requirement

TECHNICAL SKILLS

- Programming: C/C++, Python, Java, MATLAB, Verilog
- Professional Softwares: PowerWorld, HSPICE, Altium, Blender