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WORK EXPERIENCE

Rivian — **Palo Alto, CA**

Embedded Software Engineer - Internship — *June 2025 - August 2025*

- Architected Rivian's first cloud-based AI diagnostics system for wireless and embedded platforms.
- Integrated automated fault detection into CI/CD pipelines, reducing debugging time from weeks to minutes and eliminating manual triage.
- Built an automated root-cause analysis pipeline using LLM-based reasoning over connectivity logs to accelerate release validation.
- Designed a scalable cloud architecture enabling parallel diagnostics across multiple embedded programs.

Samsung Research America - Think Tank Team — **Mountain View, CA**

Embedded Systems Engineer - Full Time — *August 2023 - December 2023*

- Prototyped an embedded AI assistant earbud, developing firmware and prototype electronics for voice-based interaction.
- Designed a custom PCB with a Qualcomm processor and implemented embedded firmware in C.
- Developed a Voice Activation Detection pipeline, prototyped in Python and optimized it for real-time embedded execution in C.
- Integrated an LLM backend with a bidirectional voice pipeline, configuring server-side speech-to-text and text-to-speech services to enable low-latency conversational interaction on a wearable device.

Amazon Robotics — **North Reading, MA**

Robotics Software Development Engineer (Simulation team) - Internship — *May 2022 - August 2022*

- Developed a digital twin of a fully operational warehouse station in NVIDIA Isaac Sim, simulating autonomous robots with accurate physics and photorealistic environments.
- Implemented realistic sensor and dynamics models to support safe evaluation of autonomous robot behavior in simulation.
- Integrated a real-time VR human-in-the-loop interface with C++ and Python, enabling remote training for complex machinery interactions.
- Deployed a simulation-based training workflow to replace physical training stations, reducing safety risk and operational overhead.

Tufts University — **Medford, MA**

Research Engineer - Full-time — *December 2023 - May 2024*

- Integrated LiDAR into research platforms, built power systems circuits and developed STM32 firmware for real-time sensor interfacing.

Research Engineer - Part Time — *2021 - December 2023*

- Built a fully automated sensor fabrication device for Tufts NanoLab, enabling on-demand production of high-quality tension sensors.
- Implemented stepper-motor controller with electromechanical components and real-time PID controller in embedded C.
- Accelerated prototyping cycles from weeks to hours and ensured reproducible sensor characteristics critical for research.
- **Publication (2024):** Automated Fabrication of Smart Strain Sensing Threads (Publication Link) (Media Link)

PROJECTS

Multi-Agent Robotics Autonomy System (Simulation & Sim-to-Real) – Northeastern University   **Oct 2025 – Present**

- Leading the simulation, validation, and sim-to-real pipeline for a multi-robot autonomy system, enabling reliable evaluation and deployment of learning-based control policies on physical hardware.
- Building a ROS2-based multi-agent simulation environment in MuJoCo to surface failure modes in coordination, localization drift, actuation limits, and communication latency.
- Implementing localization, navigation, and autonomous docking for Stretch 2, integrating SLAM + AMCL with safety constraints and recovery behaviors; collaborating with RL researchers on policy integration (targeting IROS).

Servo Motor Feedback Controller (Project Link)   **2024**

- End-to-end development of an embedded real-time motor control system converting feedback DC motors into precision servos under strict timing and stability constraints.
- Implemented high-frequency PID control and trajectory planning in C on STM32, designing custom PCB hardware (H-bridge, UART/I2C) and validating closed-loop behavior under sensor noise and load variation.
- Delivered a fault-aware, drop-in control module enabling safe reuse and rapid experimentation, eliminating months of development time.

EDUCATION

Northeastern University — **Boston, MA**

Master of Science in Robotics — *2024- May 2026*

- Reinforcement Learning, Feedback Control Systems, Geometric Deep Learning, Legged Robotics, Autonomous Field Robotics

Tufts University — **Medford, MA**

Bachelor of Science in Electrical and Computer Engineering — *2019-2023*

TECHNICAL SKILLS

- **Hardware & Embedded:** C/C++, Python, Assembly, STM32, ESP32, Atmel, Xilinx FPGA, VHDL, System-Verilog, Altium, KiCad, Motor drivers (brushed/brushless), SMD soldering, I2C, SPI, UART, CAN, RTOS, PID, trapezoidal control

- **AI, Robotics & ML:** ROS2, MuJoCo, NVIDIA Isaac Sim, PyTorch, 2D/3D SLAM, GTSAM, Kalman Filter, Factor Graphs