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WORK EXPERIENCE

Rivian **Palo Alto, CA**

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

- **Built Rivian's first cloud-based AI diagnostics engine** for wireless and embedded systems, enabling fully automated fault detection with CI/CD integration and **reducing debugging time from weeks to minutes** while eliminating manual triage.
- Created a fully automated root-cause analysis pipeline that uses LLM-driven reasoning to process embedded and connectivity logs, accelerating release validation and preventing production delays.
- Designed a **scalable cloud architecture** that supports parallel analysis across embedded programs and can expand to HIL systems.

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

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

- **Prototyped AI assistant earphone**, enabling users to accomplish tasks through voice commands rather than screen interaction, promoting verbal communication skills over touchscreen dependency.
- **Engineered custom PCB with Qualcomm processor and embedded firmware (C)**, including Voice Activation Detection algorithm prototyped in Python and optimized for embedded deployment, achieving real-time voice processing.
- **Integrated LLM backend with bidirectional voice pipeline**, configuring server infrastructure with speech-to-text and text-to-speech processing to deliver seamless conversational AI experience through wearable form factor.

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 environment.
- **Integrated real-time VR human-in-the-loop interface using C++ and Python**, enabling associates to remotely practice complex machinery interactions, which eliminated 100% of collision risks and operational costs of dedicated training facility.

Tufts University **Medford, MA**

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

- 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 Robot Collaboration via RL - Researcher at Northeastern **October 2025 - Present**

- Designing and training custom multi-agent PPO architecture (centralized vs independent actor-critic variants), developing evaluation metrics to benchmark coordination performance and scalability trade-offs
- Built multi-agent simulation environment in MuJoCo with ROS2 to validate collaborative behaviors across diverse test scenarios; preparing sim-to-real deployment on robotic manipulator (targeting IROS)

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

- Built open-source controller that converts feedback DC motors into precision servos.
- Implemented high-frequency real-time PID control and trajectory-planning in C; built PCB with STM32, H-bridge, UART/I2C interface.
- Developed drop-in module that eliminates months of development time and enables engineers to study and extend control techniques.

Custom 3D Rendering and Simulation Engine (Project Link) **2022**

- Built 3D rendering and simulation engine in C++ entirely from scratch; creating fully custom linear algebra module and graphics pipeline.

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 (Covered 3D SLAM, Kalman Filters, Sensor Fusion, GTSAM, Factor Graphs)

Tufts University **Medford, MA**

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

- Algorithms & Data Structures, Computational Geometry, Advanced Computer Architecture, Parallel Computing (Cuda++)

TECHNICAL SKILLS

- **Software & Firmware:** C/C++ (10+ years), Python, Assembly, JavaScript, MicroPython, Git/Gitlab, ROS2, RTOS, PID/impedance control, MuJoCo, NVIDIA Isaac Sim, Unreal Engine, Unity, PyTorch, SQL, 2D/3D SLAM, GTSAM, Kalman Filter, Factor Graphs
- **Hardware & Embedded:** STM32, ESP32, Atmel, Xilinx FPGA, VHDL, SystemVerilog,PCB design (Altium, KiCad), Motor drivers (brushed/brushless), SMD soldering, Sensor integration, I2C, SPI, UART, CAN, Fusion360

EXTRACURRICULARS: Sailing(Was full time sailor at Tufts), wind/kite-surfing, running, lifting, Ultimate Frisbee