

INTRODUCTION

Robotics engineer formerly at Amazon Robotics, Samsung, and Rivian. Specializing in autonomy and simulation, with a track record of deploying real-time embedded and feedback control systems on hardware.

WORK EXPERIENCE**Rivian (via RV-Tech)****Palo Alto, CA***Embedded Software Engineer (Intern)**June 2025 - August 2025*

- Architected an automated diagnostics and fault-detection system for the embedded and telemetry stack, integrating CI/CD and automated release validation to streamline post-failure analysis.
- Developed a scalable root-cause analysis and replay framework correlating multi-modal sensor streams with embedded logs, reducing validation cycles from days to minutes while providing a foundation for Hardware-in-the-Loop (HIL) testing.
- Accelerated system adoption by presenting architecture to leadership and orchestrating a seamless transition to partner teams.

Samsung Research America - Think Tank Team**Mountain View, CA***Embedded Systems Engineer - Full Time**August 2023 - December 2023*

- Prototyped an AI assistant earbud by designing a PCB around a Qualcomm processor and integrating Qualcomm REX RTOS.
- Designed a low-latency Voice Activation Detection algorithm using FFT and integrated it into the REX RTOS.
- Optimized the bidirectional voice pipeline under strict latency constraints to enable real-time conversational interaction.

Amazon Robotics**North Reading, MA***Robotics Software Engineer (Simulation team) - (Intern)**May 2022 - August 2022*

- Built a digital-twin of an Amazon warehouse station in Isaac-Sim, simulating autonomous robots with accurate physics and photorealism.
- Integrated a VR human-in-the-loop interface using C and Python, enabling associates to remotely practice complex machinery interactions.
- Eliminated physical collision risks and training facility overhead by transitioning operator onboarding to a simulation-based workflow.

Tufts University**Medford, MA***Research Engineer - Full-time**December 2023 - May 2024*

- Integrated LiDAR into research platforms, developed STM32 firmware for real-time sensor interfacing, and mentored students.

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

- Built and deployed an automated sensor fabrication device for Tufts NanoLab, enabling on-demand production of quality tension sensors.
- Built 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](#))

SELECT PROJECTS**RL Robotics Autonomy System (Simulation & Sim-to-Real) – Northeastern University****Oct 2025 – Present**

- Leading the design of a MuJoCo-based robot simulation stack to evaluate custom reinforcement learning control policies, surface sim-to-real failure modes (localization drift, contact dynamics), and validate deployment on physical robots. Targeting publication at IROS.
- Building an autonomy stack for Stretch 2 (with ROS2), implementing LiDAR-based SLAM (with AMCL), and autonomous docking.
- Designing a manipulation controller using Inverse Kinematics to enable end-effector positioning for precise object grasping tasks.

Servo Motor Feedback Controller ([Project Link](#))**2024**

- Developed an end-to-end real-time feedback controller embedded system that convert DC motors into precision servos.
- Programmed a high frequency PID controller and trapezoidal trajectory motion planner in C on STM32, ensuring smooth motion profiles.
- Designed a custom PCB hardware (H-bridge, UART/I2C) and validated closed-loop behavior under sensor noise and fault conditions.
- Engineered the system as a modular drop-in controller, enabling rapid integration eliminating months of duplicated development effort.

Real-Time Procedural Environment Engine (C / OpenGL) ([Project Link](#))**2022**

- Built a real-time OpenGL program in C++ that generates a fully procedural spherical moon surface. Optimized for memory and FPS.

Custom Software 3D Rendering and Physics Engine (C++) ([Project Link](#))**2021**

- Developed a 3D rendering and physics engine in C++. Implemented rasterization, depth buffering, face culling, and rigid-body dynamics.

TECHNICAL SKILLS

- Autonomy & AI:** ROS2, 3D SLAM, GTSAM, Kalman Filters, Factor Graphs, PyTorch, RL, MuJoCo, Isaac Sim.
- Embedded Systems:** C/C++, Python, RTOS, STM32, VHDL, Verilog, PID/Trapezoidal Control, Altium/KiCad, I2C, SPI, UART, CAN

EDUCATION**Northeastern University****Boston, MA***Master of Science in Robotics**2024- May 2026*

- Deep Learning, RL, Computer Vision, Feedback Control Systems, Legged Robotics, Autonomous Field Robotics

Tufts University**Medford, MA***Bachelor of Science in Electrical and Computer Engineering**2019-2023*