Jack P. DeMarinis

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Summary

Computer engineer with a strong focus on robotics software, autonomy-adjacent systems, and simulation. Experienced building multi-agent robotic systems using ROS on Linux, integrating real-world sensor data, and developing performance-aware C++ and Python software. Background spans robotics middleware, embedded Linux development, simulation, and AI-driven decision systems. Comfortable working across software and hardware boundaries in test-heavy, iterative environments.

Education

University of Rhode Island, Kingston, RI   Expected May 2026
M.S. Electrical Engineering (Accelerated B.S./M.S. Program)
GPA: 3.90 / 4.00

University of Rhode Island, Kingston, RI   May 2025
B.S. Computer Engineering
Minor: Mathematics
GPA: 3.90 / 4.00

Technical Skills

Languages: C++, C, Python, Bash, JavaScript, HTML/CSS, MIPS Assembly, LC-3
Robotics & Systems: ROS / ROS2, Linux (Ubuntu), Docker, robotics middleware, simulation pipelines, sensor integration (odometry, RGB-D), real-time data processing, multi-agent systems
AI / Autonomy Tooling: PyTorch, Hugging Face Transformers, LoRA / PEFT fine-tuning, retrieval-augmented generation (RAG), embeddings, FAISS vector search, LLM-based decision systems
Engineering Tools: Unity (3D simulation & visualization), MATLAB, Fusion 360, AutoCAD, LTSpice, Multisim, VHDL, OpenMV IDE

Experience

Graduate Research Assistant   Sep 2025 – Present
University of Rhode Island, Kingston, RI

- Designed and implemented multi-agent software systems for automated analysis and decision pipelines.
- Built simulation environments to study distributed agent coordination and system behavior.
- Developed Unity-based 3D and VR visualization tools to analyze autonomy and coordination outcomes.
- Worked in Linux-based research environments emphasizing testing, iteration, and performance awareness.

Undergraduate Research Assistant   May 2024 – Aug 2025
University of Rhode Island, Kingston, RI

- Developed AI-driven software systems using large language models and structured reasoning pipelines.
- Built and maintained backend services using Python and Flask in modular, testable architectures.
- Integrated multiple external APIs and data streams into reliable end-to-end systems.

Computer Engineering Intern   May 2024 – Jan 2025
Electro Standards Laboratories, Cranston, RI

- Developed and maintained embedded Linux software using C and Python.
- Troubleshot electrical and software issues through hands-on testing and system-level debugging.
- Collaborated with hardware and engineering teams to validate system behavior and reliability.
- Authored technical documentation supporting long-term maintainability and deployment.

Software Engineering Intern Jun 2023 – Dec 2023
IGT, West Greenwich, RI

- Debugged and resolved Linux system issues using low-level command-line and system analysis tools.
- Developed Bash, C, and C++ software for device-level API integration.
- Implemented and evaluated OCR pipelines to improve system accuracy and robustness.

Selected Projects

LLM Robotics

- Built and simulated a mobile TurtleBot-style Waffle robot using ROS on Linux.
- Integrated odometry and RGB-D camera data streams into a unified perception pipeline.
- Designed ROS nodes to preprocess sensor data and publish structured state representations.
- Connected real-time robot observations to a large language model for high-level reasoning.
- Used LLM outputs to guide navigation logic, task selection, and contextual decision-making.
- Evaluated system behavior in simulation with respect to latency, robustness, and consistency.

Agentic RAG Chatbot

- Built a multi-agent retrieval-augmented generation system for structured reasoning.
- Implemented embedding pipelines and FAISS-based vector search to reduce hallucinations.
- Deployed the system as a Dockerized Flask API designed for iterative testing.

AI Meeting Assistant

- Developed an end-to-end meeting intelligence platform including transcription and summarization.
- Integrated speech-to-text systems with LLM-based action item and agenda extraction.
- Emphasized modular design and reliability across varying input conditions.

Senior Capstone: Robotic Assembly & Inspection

- Designed an automated PCBA assembly and inspection workstation.
- Integrated robotics hardware, sensors, and control software into a unified system.
- Modeled mechanical components and fabricated custom parts using 3D printing.

Activities & Honors

Dean's List (every semester)
Raymond M. Wright FastTrack Scholarship (2025–2026)
URI Wrestling Team
Accelerated B.S./M.S. Program Admit