
U.S. CITIZEN | CIVILIAN APPLICANT

SOFTWARE AND EMBEDDED SYSTEMS ENGINEER

Seeking Navy Innovation Unit consideration. Builds software, integrates robotics and embedded hardware, and validates systems through field trials, replay, and production debugging. Experience spans maritime engineering tools, autonomy, and operator-facing applications.

Core engineering: C, C++, Rust, Python; ARM Cortex-M, STM32, bare-metal and RTOS firmware, CAN, UART, SPI, I2C, PWM; Altium PCB design and board bring-up

Autonomy and systems: ROS 2, Nav2, sensor fusion, GNSS/IMU, PX4/MAVLink, embedded Linux, Git, Docker, Nix, systems integration and debugging

SELECTED ENGINEERING EXPERIENCE

O3 Worldwide, Inc. (Huntington Beach, CA) 06/2026 – Present
Technology and Computer Engineering Consultant | Aviation, aerospace, maritime, and advanced manufacturing

- Support engineering and planning across aerospace, maritime, shipbuilding, and advanced manufacturing, including the O3-led, \$15 billion-plus Orlando Sanford International Airport development opportunity.
- Develop system architecture, software and data requirements, simulation tools, and decision-support workflows for aircraft manufacturing, training, and distributed shipbuilding.
- Perform systems engineering for unmanned aerial and surface vehicles, boats, and small ships, including autonomy, controls, simulation integration, and requirements traceability.

Shipyards Operations Platform | Rust, Python, FastAPI, PostgreSQL, React, Docker

- Built Rust and Python/FastAPI services, a PostgreSQL operational model, and a React operator interface connecting parts, equipment, workers, and task dependencies; integrated OPC-UA adapters and OR-Tools CP-SAT scheduling.
- Deployed locally, adapted workflows to operator feedback, and implemented role-based access, event history, and tamper-evident audit records; developed for potential shipbuilder deployment.

Ibrium Studios (Los Angeles, CA) 09/2025 – 05/2026
Independent Embedded Systems Engineer | Production systems

- Architected distributed real-time control for a production multi-axis motor system; implemented the CAN protocol, ARM Cortex-M node firmware, central controller, multilayer Altium PCBs, feedback, fault detection, and safe-stop behavior.
- Owned board bring-up and hardware/software integration, delivering robotic controls under a fixed production deadline.
- Traced intermittent CAN latency with a logic analyzer to a control-loop deadline overrun, moved scheduling to a fixed-rate timer interrupt, and revalidated motion; integrated SLAM registration with Unreal Engine, documented operations, and trained production staff.

Saddleback College Robotics (Mission Viejo, CA) 06/2021 – 06/2023
Co-Software Lead, Mars Rover Team | University Rover Challenge

- Co-led ROS 2 rover autonomy through two competition seasons, integrating Nav2 behavior trees, waypoint navigation, ArUco detection, obstacle avoidance, stereo cameras, LiDAR, GPS, and IMU fusion.
- Connected autonomous and teleoperated control to STM32 through an asynchronous Rust driver; integrated ODrive motor control, React/TypeScript and Foxglove interfaces, and Jetson video.
- Validated autonomy through field trials and rosbag replay; coordinated subsystem integration through GitHub reviews and built Gazebo/Isaac Sim environments and a Docker harness to test navigation without vehicle hardware.

SELECTED SOFTWARE AND VALIDATION PROJECTS

Flight-Software Static Analysis | Rust, PX4 v1.16

- Built a Rust analyzer for PX4 C/C++ flight software with function discovery, call extraction, MAVLink-handler lookup, and heuristic checks for authentication references, unsafe memory access, and navigation-state writes. Validated against vulnerable-versus-corrected fixtures with 29 passing tests and a release build.

Counter-UAS Electronic-Warfare Decision Engine | Haskell, signal processing, simulation

- Engineered a Haskell pipeline from synthetic and recorded SigMF IQ through FFT, CA-CFAR detection, emitter-feature extraction, and threat-library matching to constrained response selection; implemented confidence-based abstention when evidence was insufficient.
- Evaluated response plans against mission state, spectrum restrictions, and resource limits. Preserved decision evidence for adversarial scenario evaluation and replay-based debugging; pinned Nix environments made the processing and evaluation workflow reproducible.

Computational Aircraft Design and Optimization | Python, NumPy, SciPy, OpenVSP, CalculiX

- Connected parametric geometry with aerodynamic, structural, mass, and aeroelastic analysis; screened hundreds of variants, validated three finalists with higher-fidelity tools, and identified a trade-study design with approximately 24% lower structural mass than its baseline.
- Built an event-backed validation chain across geometry and analysis handoffs, retained solver artifacts, checked outputs against published references, and flagged uncertain results for engineering review.

ADDITIONAL EXPERIENCE

Hasan & Associates (Huntington Beach, CA)

06/2026 – Present

Litigation Technology and Evidence Systems Consultant | Trial and evidence preparation

- Designed tools and workflows to organize and synchronize video, images, documents, timelines, and demonstrative exhibits; created courtroom-ready multimedia presentations and applied data-processing, conversion, quality-control, and retrieval methods across large evidentiary records.

Tata Consultancy Services (Remote)

12/2025 – 02/2026

Independent Field Researcher and Developer | Apple AR/LiDAR research partnership

- Configured sensors and validated field captures across multiple sites; developed C software and repeatable protocols for consistent indoor scanning.

MedBWS

05/2020 – 06/2023

Automation Lead | Hospital deployments

- Built a computer-vision and Swift iOS workflow for pharmaceutical identification and disposal in HIPAA-compliant hospital environments, including secure APIs, access controls, and audit logging.

TECHNICAL SKILLS

Firmware and hardware: C, ARM Cortex-M, STM32, bare-metal and RTOS firmware, CAN, UART, SPI, I2C, PWM, Altium, JTAG/SWD, oscilloscopes, logic analyzers

Autonomy and simulation: C++, Rust, Python, ROS 2, Nav2, behavior trees, sensor fusion, robot_localization, GNSS/IMU, PX4/MAVLink, Gazebo, Isaac Sim, ros2_control, rosbag, MATLAB/Simulink

Systems and tools: Linux, NVIDIA Jetson, Git, Docker, Nix, TCP/IP, UDP, DDS, COBS/postcard, Haskell, Go, TypeScript, FastAPI, PostgreSQL, OR-Tools, OPC-UA, Swift

ASSESSMENTS

CodeSignal Industry Coding Assessment: 600/600, August 2026

AFQT Predictor Test: 99th percentile, April 2026

EDUCATION

IRVINE VALLEY COLLEGE

Cumulative GPA: 4.0 | Computer Engineering and General Engineering coursework, all A's

C++, Computer Organization and Assembly, MATLAB, Python, Calculus, Linear Algebra, and Differential Equations