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SOFTWARE AND EMBEDDED SYSTEMS ENGINEER

September 22, 2026

Commander Caitlin Tye
Navy Innovation Unit
United States Navy Reserve
caitlin.m.tye.mil@us.navy.mil

Re: Navy Innovation Unit Technical Talent Consideration

Dear Commander Tye:

I am seeking consideration for the Navy Innovation Unit's technical talent initiative as a civilian software and embedded-systems engineer interested in joining the Navy Reserve. My work combines production robotic controls, field-tested rover autonomy, and engineering software for maritime and aerospace programs. I would bring experience translating operator needs into working software, integrating it with hardware, and preserving evidence for testing and handoff.

At Ibrium Studios, I architected distributed real-time control for a production multi-axis motor system. I implemented CAN communications and ARM Cortex-M firmware, designed motor-control PCBs in Altium, and owned board bring-up and hardware/software integration. When intermittent control latency appeared, I used a logic analyzer to isolate a control-loop deadline overrun, moved scheduling to a fixed-rate timer interrupt, and revalidated motion. I delivered under a fixed production deadline, documented operating procedures, and trained production staff.

At O3 Worldwide, I develop software and system architecture for aerospace and maritime programs, including unmanned surface vessels and shipyard operations. I built and locally deployed shipyard-planning software that connects parts, equipment, workers, and task dependencies through Rust and Python services and an operator interface. Constrained scheduling evaluates resource conflicts; access controls and event history keep changes reviewable. I adapted the workflow to operator feedback. I also built a Haskell electronic-warfare decision engine connecting RF detection and emitter matching to response selection under spectrum and resource constraints. Confidence-based abstention and retained decision evidence support review of uncertain results; synthetic and recorded IQ replay support repeatable debugging.

As Co-Software Lead for Saddleback College Robotics, I helped integrate ROS 2 navigation, behavior trees, obstacle avoidance, and camera, LiDAR, GPS, and IMU data across two competition seasons. An asynchronous Rust driver connected autonomous and teleoperated control to STM32 hardware. Field trials, recorded-run replay, and simulation tests supported subsystem integration. I coordinated changes with teammates through code review and replayable tests so subsystem behavior could be verified and maintained.

I am a U.S. citizen and am not currently a reservist. I would appreciate a conversation about how my software, autonomy, and integration experience could contribute to NIU, along with guidance on the applicable accession requirements and selection process. My résumé includes my engineering work, coursework, and assessments for your review. Thank you for your consideration.

Sincerely,



Jahan Khan