Noel Caverly

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SUMMARY

Embedded firmware and systems engineer with 3+ years of professional experience in real-time microcontroller firmware, serial communication protocols (UART, BLE, I2C/SPI, CAN bus), and autonomous systems software. Proven ability to own full firmware development cycles — from architecture to field deployment — in resource-constrained startup environments.

EXPERIENCE

A2Z Drone Delivery — Los Angeles, CA
Senior Software Engineer — January 2023 – March 2026

- Joined as a contractor and was promoted to Senior Software Engineer following the departure of the CTO; served as sole software engineer on the U.S. side of a distributed team, owning firmware and GCS software architecture end-to-end and driving technical direction directly with the CEO.
- Redesigned the onboard winch firmware to the MAVLink winch protocol, implementing closed-loop speed and distance control that significantly improved payload delivery reliability and drop accuracy.
- Developed C++ firmware for an ESP32 microcontroller to receive MAVLink telemetry over BLE, and implemented OTA update pipelines for ESP32 and STM32 via UART bootloader with a Python field-deployment client.
- Built the A2Z custom fork of QGroundControl (QGC) in C++/Qt, adding proprietary panels for winch control, automated precision delivery, and accessory management.
- Commissioned ~10 of the company's 15 delivered drone systems, serving as primary owner of hardware bring-up, software configuration, server infrastructure, and pre-delivery QA.
- Onboarded 4 new software engineers onto the codebase, authored internal guides covering architecture and tooling, and introduced Git-based version control workflows to the team.

Bear Robotics — Los Angeles, CA
Field Operations Technician — August 2021 – December 2022

- Deployed and maintained autonomous service robots across West Coast restaurant and senior living environments; diagnosed hardware and software issues on-site and remotely using proprietary telemetry tools.

NASA Jet Propulsion Laboratory (JPL) — La Cañada Flintridge, CA
Software Engineering Intern — June 2019 – August 2019

- Built a LabVIEW GUI and acquisition backend for multi-target interstellar imaging; contributed to thermal enclosure design for a flight instrument prototype.

TECHNICAL SKILLS

Languages: C/C++, Python, Java, Swift, Verilog, Assembly (MIPS, IA-32)
Embedded & Hardware: ESP32, STM32, Raspberry Pi, MAVLink, BLE, UART, I2C/SPI, CAN bus, GPIO, OTA firmware updates, QGroundControl (QGC), embedded Linux
Software & Tools: Qt, Git, Vivado, Xcode

EDUCATION

Pennsylvania State University — Centre County, PA
Bachelor of Science, Computer Engineering — Sep 2017 – May 2021

CERTIFICATIONS

FAA Part 107 Remote Pilot Certificate — Federal Aviation Administration

PROJECTS

Pipelined MIPS32 CPU — *Verilog · Vivado*
Designed a 5-stage pipelined CPU in Verilog executing MIPS32 instructions with hazard detection and branch prediction. github.com/NoelCav/PipelinedMips