

Skills

- Languages: C/C++, Bash, Python, Verilog, Tcl
- Software Tools: SVN, Git, Coverity, Vivado, Vitis, SoftConsole, QEMU, Altium, STM, Logic 2
- Operating Systems: Linux (Embedded Arm, Arch, RHEL, Ubuntu), FreeRTOS, ROS

Education

San Diego, CA **San Diego State University** **Aug 2018 | May 2023**

- B.S. in Computer Engineering.

Employment

Software Engineer **Innoflight, LLC** **May 2023 – Current**

- Led software development efforts on three SDA Tranche 1 projects, including Linux network switches for Low Earth Orbit (LEO) satellites utilizing a Buildroot build system.
- Co-architect and sole developer for a user-space and Linux kernel-space implementation of a Remote Memory Access Protocol (RMAP) to facilitate communication between flight computers.
- Performed unit testing using the Unity framework and integration on a ZCU102 and production hardware.
- Implemented and validated protocols such as SpaceWire, UART, HDLC, and I2C.
- Conducted thorough code reviews, triaged with Coverity static analysis and worked with 3rd party contractors to ensure code quality and adherence to project/company standards.
- Investigated and resolved bugs on a RISC-V based “Supervisor” board responsible for monitoring, power sequencing, and managing environment variables for multi-platform units.
- Collaborated with FPGA engineers and developed proof-of-concept designs for CAN bus and SpaceWire utilizing development boards from Xilinx and Microsemi.

Engineering Intern **Innoflight, LLC** **Jan 2022 – May 2023**

- Custom Xilinx-based board bring-up and development using PetaLinux and Xilinx suite.
- UDP based embedded webserver on Polarfire SoC FPGA using LWIP and FreeRTOS for remote flash update proof-of-concept.
- Schematic capture and PCB design using Orcad and Altium to develop an SSD module for Camera Link and power-test boards to allow early and rapid development on VPX form-factor units.
- Schematic capture for an I/O Mezzanine card with an IGLOO2 FPGA to accelerate software test and debugging of communication protocol implementations.
- Created python and bash scripts to improve part radiation stress and reliability processes.

Embedded HW Intern **ObjectSecurity, LLC** **Aug 2022 – Jan 2023**

- Setup and built an ECU simulating hardware system based on STM32 identical to OEM ECU to support vulnerability analysis on the CAN bus.
- Simulated DOS attacks and obtained critical safety data through a single board computer acting as a node on the ECU system.

Awards

- **Winner of 2023 DASSH Student Design Challenge** (Department of Homeland Security) Worked on a team of students to create a proposal using hardware sensors to detect changes in the nominal states of mass-gathering areas to pinpoint locations of an attack and guide civilians to safety.