

EDUCATION

University of Pennsylvania (UPenn)

Major: M.S. in Electrical Engineering

Concentration: Computer Engineering

May 2025

Philadelphia, PA

GPA: 3.170

Embry-Riddle Aeronautical University

Major: B.S. in Software Engineering

Minor: Space Studies

May 2023

Daytona Beach, FL

GPA: 3.561

WORK EXPERIENCE

Software Engineer 1

Garmin International

June 2025 – Present

- Benchmarking performance of avionics to comprehend system behaviors, capabilities, and limitations
- Writing software requirements to capture implementation specific details for libraries and APIs
- Integrating Ethernet saturation tools into test environment to exercise additional system I/O
- Executing system tests to validate high-level requirements in accordance with DO-178B/C guidelines

Graduate Teaching Assistant - ESE 5160

UPenn

Jan 2025 – May 2025

- Researched platform capabilities of Atmel SAMW25 module to help students define project goals
- Met with student teams regularly to evaluate project progress and provided feedback on deliverables
- Demonstrated to project teams how to establish a system architecture for real-time operating systems
- Performed emergency firmware upgrades on ATWINC1500 network module via exposed UART pins

Graduate Teaching Assistant - ESE 5180

UPenn

June 2024 – Dec 2024

- Contributed to development of new graduate course in embedded development and wireless security
- Developed course content in modern build systems based on CMake and cross compilation for Nordic MCUs
- Supported students in leveraging peripherals with Zephyr RTOS for course final project
- Taught methods on formulating and decomposing system requirements during office hours and recitations

SOFTWARE PROJECTS

Embedded Systems Handbook

Jan 2025 – Present

- Creating an open-source knowledge base to document embedded systems knowledge
- Providing a platform for students to share knowledge with greater UPenn engineering community
- Authored initial content on build systems (CMake) and software unit testing
- Utilizing MkDocs and GitHub Pages for organization and deployment
- Implementing CI/CD pipeline for deployment and staging actions

Ad Astra – Pocket Star 1

Jan 2024 – May 2024

- Designed a prototype star tracker mount for astrophotography
- Fabricated custom PCB based on Atmel SAMW25 module via Altium Designer
- Interfaced ST Teseo LIV3 GNSS module via I2C to acquire coordinates for proper polar alignment
- Leveraged FreeRTOS for thread safe I/O operations, task concurrency, and a scheduler to satisfy system deadlines
- Integrated over the air (OTA) update functionality via WINC1500 Wi-Fi module

Spectre, Software Lead

Experimental Rocket Propulsion Lab (ERPL)

Jan 2020 – May 2023

- Lead development of active stabilization unit on high-powered experimental rocket
- Developed servo control API for ATmega2560 and NXP i.MX RT1062 processors
- Built a Linux server running a self-hosted instance of GitLab for Spectre
- Re-architected design and requirements to improve software maintainability
- Taught members software engineering and embedded software concepts

SKILLS

- **Software:** Embedded C, C/C++, Python, Assembly
- **Hardware:** STM32, ARM, NXP, Arduino, Nordic
- **Protocols:** I2C, SPI, UART, USB, UDP, A429
- **Web Development:** HTML, CSS, Javascript, Next.js
- **CAD/Design:** Altium Designer, KiCad
- **Operating Systems:** FreeRTOS, VxWorks, Zephyr