Cooper Werner

Hardware Design Engineer

cooperwerner824@gmail.com | +1 (410) 370–1474 | https://cooperw.tech | https://www.linkedin.com/in/cooperwerner

Education

M.S. Electrical Engineering — **Concentration: Computer Hardware and Microprocessors**
Rensselaer Polytechnic Institute — Anticipated Graduation: May 2027

B.S. Computer Science — **GPA: 4.0/4.0**
Rensselaer Polytechnic Institute — Degree Awarded in May 2026

Technical Skills

- Languages: Bash, C, C++, Rust, Python, Assembly
- Interfaces: Ethernet (100-BASE-T), I2C, SPI, RS485, UART
- Hardware & EDA Tools: Altium Designer, Cadence Virtuoso, KiCad, LTSpice, Oscilloscopes, Logic Analyzers
- Microcontroller Architectures: STM32, TI-MSPM0, AVR, Raspberry Pi, ARM
- Software and Tools: Linux, Git, Automated Testing, CMake, Docker

Professional Experience

Corning Incorporated – Advanced Optics — May 2026 – August 2026

Metrology Software Engineering Intern

- Utilized C++ and Python to integrate novel laser analysis equipment into Corning's metrology software suite.
- Developed algorithms for processing laser spectrum measurements improving the accuracy of wavelength and linewidth measurements by 20%.
- Correlated laser spectrum information with interferometry data improving measurement precision by 15%.

Contract Client (Small Business) — November 2025 – May 2026

Freelance Hardware Design Engineer

- Designed multiple 4-layer PCBs containing an STM32, high-fidelity ADCs, and Ethernet connectivity.
- Utilized LTSpice to verify filter and amplifier designs adding 6dB of headroom for the ADC to prevent saturation.
- Implemented controlled impedance differential pairs for Ethernet and USB interfaces, ensuring signal integrity for data rates exceeding 100 Mbps.

Corning Incorporated – Advanced Optics — June 2025 – August 2025

Metrology Software Engineering Intern

- Utilized Numpy and FFTW to optimize image processing algorithms for measuring spherical optics, reducing the time to measure an optic by 50%.
- Implemented a PID controller to monitor and correct metrology system alignment, improving accuracy by 10%.
- Architected a tool to perform automated repeatability testing improving interferometer precision by 5%.

Projects

Liquid Fueled Rocket Engine (Electronics & Software Lead)

Club Project with the Rensselaer Spaceflight Society

- Designed a custom printed circuit board (PCB) for connecting sensors, processors, and valves.
- Led a team of 6 engineers, teaching skills like software architecture, PCB design, and debugging.
- Utilized RS485 for communicating with the rocket engine at 115.2 kbps over 300 meters while ensuring a stable connection.

Project Aurora: Custom Designed Smartwatch

- Architected a low-power PCB design, constraining total power draw to <2.5 mW through component-level power analysis.
- Engineered safe lithium-ion battery charging circuitry handling tight space and thermal constraints utilizing the BQ25185 linear battery charger from Texas Instruments.

Leadership & Activities

Treasurer & Electronics Lead — September 2023 – December 2025

Rensselaer Spaceflight Society

- Managed over $5000 in club funding and the procurement of club supplies for 5 different projects.
- Organized and led workshops teaching PCB design and embedded systems to over 100 students.

Director of Technology — September 2023 - December 2024

HackRPI

Eagle Scout — Earned: April 2021