

Eli Ferrara

Poolesville, MD | 240-474-1144 | eliferrara@gatech.edu | [linkedin.com/in/eli-ferrara](https://www.linkedin.com/in/eli-ferrara) | eliferrara.com | US Citizen

OBJECTIVE

Electrical Engineering student and US citizen with four years of hands-on design experience across custom PCBs, embedded firmware, and sensing systems, including a flight control board developed at the Naval Surface Warfare Center and an instrumented rover presented at JHU APL. Seeking a Summer 2027 internship in hardware or PCB design.

EDUCATION

Georgia Institute of Technology

Bachelor of Science in Electrical Engineering

Atlanta, GA

Expected Dec. 2028

Poolesville High School

Poolesville, MD

Science, Mathematics, and Computer Science (SMCS) Magnet Program

- **Coursework:** Elements of Computing Systems, Advanced Networking, Data Structures and Algorithms, Discrete Math, Robotics, Intro AI/LISP

TECHNICAL SKILLS

Programming: C/C++, Python, Java, PostgreSQL, MPI (distributed/parallel workloads)

Hardware: Custom PCBs, ARM SBCs (Raspberry Pi, Cortex-A), ESP32/Atmel/NXP MCUs, Digital Logic Design, Embedded, 3D Printing, CNC

Software: Cadence Virtuoso, KiCad, Magic VLSI, ngspice, Onshape, ParaView, Linux (Armbian/Debian/Arch), Git, Ollama, SSH/VNC, Wireshark

EXPERIENCE

Open Circuit Design

Feb. 2024 – May 2025

Analog IC Design Research Intern, under the mentorship of Dr. Timothy Edwards

Poolesville, MD

- Authored software to refine a reinforcement-learning reward function for analog IC layout on the SKY130 PDK.
- Showed that fundamental analog IC design tenets can be condensed into computer-definable metrics.
- Presented research findings at the FOSSi Latch-Up Conference at the University of Waterloo, Ontario.

School Electric Remote Controlled Go-Kart

Jan. 2026 – Aug. 2026

Student Engineering Lead

Poolesville, MD

- Led 30 students across six design groups converting a Manco 415 chassis to a 77 V 24S LiFePO₄, 15 kW electric powertrain with autonomous steering. Personally designed and built the battery pack from scratch. Delivered on time and over \$3,000 under budget.
- Designed the 4-layer control mainboard in KiCad with impedance-controlled CAN, Ethernet, and USB differential pairs, split bus termination, MCP4725 DAC throttle interface, and optoisolated speed feedback, linking a Teensy 4.1 real-time controller to a Raspberry Pi over framed UART. ELRS radio link repurposed from drone hardware.
- Built the high-voltage safety chain around an EV200 contactor and MOSFET precharge circuit, resolving repeated P-channel MOSFET failures traced to V_{GS} overshoot.

PROJECTS

Remote-Controlled Ultralight Blimp

Mar. 2023 – June 2026

Engineering Team Lead

US Naval Surface Warfare Center, Carderock, MD

- Designed an 11 g, WiFi-enabled, ESP32-based blimp control board with 9-DoF sensor fusion, altitude mapping, 4 motor drivers, and an integrated HD camera, all powered by a single 300 mAh battery. Wrote the corresponding 2000+ LoC library.
- Open-sourced all hardware & software and secured over \$1,000 of school funding to produce assembled boards for future students.
- Led the team building a sub-85 g WiFi blimp with onboard AprilTag and facial recognition.

JHU Project Symposium

July 2025

Engineering Team

Johns Hopkins University Applied Physics Laboratory

- Developed a WiFi-controlled rover collecting ultrasonic, visible, and spectral data to identify crater features, streaming live video for teleoperation; presented at the 2025 XR Symposium.

Thermal Camera | Independent Project

Feb. 2025

- Designed, built, and coded a thermal camera with a 320x240px visible-light overlay to detect thermal runaway on circuits and ICs, using a custom PCB, an FIR thermopile array, and a low-cost SBC.

Distributed Computing System | Independent Project

Apr. 2025

- Built a 14-node compute array from recycled ARM Cortex-A9 SBCs with custom cooling and a tuned Armbian image, using MPI for centralized control across Python and C++ workloads.

“Seed Shaker” Accessibility Tool | OASIS Farms

Sep. 2024 – Jan. 2025

- Built a hydroponics planting tool for people with developmental disabilities, geared for gross motor control.