Carter O.B. Bliss

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Objective

Multifaceted electrical engineering student with experience in materials innovation labs, PCB design & fabrication, and embedded systems seeking a Summer 2026 internship in hardware or software engineering. Skilled in rapidly learning new technologies, applying analytical reasoning, and building reliable, hands-on solutions.

Education

Georgia Institute of Technology | B.S. Electrical Engineering | E.G: 2028 | GPA: 4.00

Relevant Coursework: Digital System Design, Computing for Engineers (MATLAB), Chip Scale Energy & Power, Physics E&M

EXPERIENCE

Electrical & Firmware Engineer – HyTech Racing **Aug 2025 - Present**

- Developed C++ steering sensor firmware on Teensy 4.1 to calibrate, run plausibility checks, and convert ADC values for analog and digital steering sensor; validated with Google Test unit tests across 25+ edge cases.
- Integrated CAN & Ethernet data transmission to Drivebrain, enabling "Mode 4" vehicle dynamics: real-time software adjustments with active lean compensation and aerodynamic drag reduction for high-speed cornering.
- Created an FSAE-compliant brake light PCB meeting competition timing standards for team's electric racecar.

Systems Designer – Chip Scale Power & Energy **Jan 2026 - Present**

- Engineered custom IC in KiCad to characterize capacitance and stability of team-fabricated supercapacitor under simulated and actual stratospheric conditions.
- Developed Rust firmware for STM32 microcontroller to precisely drive PWM switches, synchronous ADC sampling (current/voltage), and real-time data logging to flash.
- Led LTspice transient simulation of constant current charge & discharge subcircuits, switch modeling and assembling all subcircuits onto PCB.

Advanced Prototyping Technical Officer – Materials Innovation Learning Laboratory **Aug 2025 - Present**

- Manage, maintain, and troubleshoot material testing equipment to assist undergraduate and graduate students.
- Create standard operating procedures and lead hands-on staffer trainings on equipment in Advanced Prototyping Lab.
- Provide hands-on technical assistance to approximately 15 users and staffers weekly, promoting safe equipment usage and experimental workflows.

Projects

Chip Scale Power & Energy – Georgia Institute of Technology **Spring 2026**

IC for characterizing team-fabricated supercapacitors aboard a NASA stratospheric balloon flight targeting space-based energy storage.

- Served as circuit design lead; designed and assembled constant-current discharge using op-amp feedback loop and NMOS switch, and constant current charge with LM334Z, both targeting 10µA precision across varying supercapacitor voltages.
- Designed PMOS/NMOS switching system for timed charge/discharge cycling, and overvoltage safeguarding with LM193.
- Created custom KiCad schematic symbols and PCB footprints for all components to survive -60°C.

Steering Firmware & Brake Light PCB – HyTech Racing **Fall 2025**

Firmware and hardware technical deliverables for Georgia Tech's FSAE electric racecar team.

- Designed brake light PCB in Altium Designer: created custom LM555 8-SOIC schematic symbol and footprint from datasheet, laid out RC timing circuit with USB-C power input, completed full DRC with 0 errors, and assembled board.
- Implemented steering sensor firmware within HyTech's VCF codebase in C++; wrote unit test suite using Google Test covering calibration, plausibility checks, and ADC conversion cases.

Skills & Hobbies

- Programming: Python, C#, C++, MATLAB
- Software: Altium, KiCad, LTspice, Blender, Excel, GitHub, Glowscript, Tinkercad
- Hardware: Teensy 4.1, STM32
- Lab Equipment: Prusa i3 & Formlabs 3+ printers, F505 Mechanical Tester, Glowforge Laser Cutter, CNC
- Languages: English(native), Mandarin(proficient)
- Leadership: DVHS XC & Track Captain, BSA Patrol Leader, USNA SS, Philmont–Head Chef
- Hobbies: Basketball, running, hiking, weightlifting, ping pong, and learning guitar