

TANNER SCHLOM

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SUMMARY

Computer Engineering student (Electrical Engineering track) with a prior B.S. in Mechanical Engineering and hands-on CubeSat hardware experience: FPGA magnetorquer drivers, 6-layer PCB layout, and embedded firmware. Seeking a **Summer 2027 internship or co-op** in embedded systems, FPGA design, or space/defense hardware. **U.S. citizen, eligible for security clearance.**

EDUCATION

Auburn University — Auburn, AL

Expected Dec 2027

Bachelor of Computer Engineering, Electrical Engineering Track | GPA 3.50 | Dean's List, Spring 2025

Relevant Coursework: Embedded System Design, Digital System Design (FPGA/Verilog), Digital Electronics, Orbital Mechanics, Space Mission Design, Fundamentals of Aerospace Eng.

University of Colorado Colorado Springs — Colorado Springs, CO

May 2021

B.S. Mechanical Engineering | *Senior Design:* Northrop Grumman-sponsored computer vision system to identify vehicle make/model/year

TECHNICAL SKILLS

Languages: Embedded C, C++, Verilog, MATLAB

Hardware: STM32, MSP430, Arduino; Xilinx FPGAs (Nexys, Spartan); H-bridge/PWM drivers; oscilloscopes; logic analyzers; soldering & PCB assembly; 3D printing

Tools: Altium Designer, KiCad, Vivado, Multisim, LTspice, Fusion 360

Domain: ADCS/magnetorquer design, multilayer PCB layout, FPGA/RTL design, embedded systems, design for manufacturing, orbital mechanics, mission design

Certifications & Affiliations: USCG Master 25-Ton License | IEEE Member

ENGINEERING EXPERIENCE

Auburn University Small Satellite Program (AUSSP) — Auburn, AL

Jan 2025 – Present

ADCS Engineer, ASTRA-ETHEREA Mission (3U CubeSat)

- Sole owner of magnetorquer design and control for a 3U CubeSat mission measuring the increase in de-orbit rate produced by an electromagnetic tether; hardware in V0 development.
- Redesigned the X/Y-axis magnetorquers from internally wound coils to coils embedded in the solar panel PCBs, increasing loop area to **cut power consumption 30% and increase torque 15%** (dipole moment 0.22 A·m², 0.28 W per axis).
- Designing and laying out the 6-layer solar panel PCBs in Altium, sized to the full long face of the 3U bus, integrating the embedded magnetorquer coils with the solar array.
- Developed an FPGA magnetorquer controller in Verilog that receives serial commands from the ADCS board, drives the coils through multiple H-bridges with PWM, and monitors coil temperature.

PROJECTS

Automated Magnetorquer Coil Winding Machine — AUSSP

2025

- Designed and built a machine that winds coils to user-entered specifications with automatic turn counting and constant wire tension, delivering uniform, repeatable windings not achievable by hand.
- Modeled the mechanism in Fusion 360 and designed the control electronics in KiCad; drove two NEMA 17 steppers with BigTreeTech drivers and wrote the control firmware on Arduino Micro.

Space Mission Design Capstone: Dust Telescope for Debris Removal — Advisor: Dr. David Guzzetti

Aug 2026 – Present

- Designing a full mission and spacecraft to test whether programmable dust (composite particles that harness solar radiation to raise their orbital velocity) can de-orbit space debris; hardware effort centered on the dust-telescope payload.

Keypad Lock Finite State Machine — ELEC 3220 Digital Electronics

Aug 2026

- Designed a finite state machine that validates a keypad code and sounds an alarm on incorrect entry; simulated in Multisim and built from discrete logic on an NI ELVIS breadboard.

PROFESSIONAL EXPERIENCE

DreadKnot Supply — Founder & Product Designer

2023 – Present

- Founded and operate a 3D-printed product business; designed 14 products and sold 5,000+ units via Etsy, Shopify, eBay, Amazon, and 4 B2B accounts.
- Run a 7-printer FDM production line; apply design-for-manufacturing to reduce material cost, cut shipping cost through packaging-driven part design, and improve strength and durability through material selection.

Top Tier Watersports — Parasail Vessel Captain, Gulf Shores, AL

May 2021 – 2024

- Sole operator responsible for a 35-ft parasail vessel: 15 passengers per trip, 10–12 trips per day over an 8-month season; supervised a deckhand and delivered all passenger safety briefings.
- Performed engine/electrical repairs and vessel maintenance, maintained USCG certifications, and made daily weather go/no-go calls.