

Finley Bartholmai

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Education

Worcester Polytechnic Institute

BS, Electrical and Computer Engineering — Class of 2029

Worcester, MA

Cumulative GPA: 4.0/4.0 | Presidential Scholarship | 2025 Fall Semester Dean's List

Relevant coursework:

- Software Radio Design - designed PLLs, filters, and demodulators in Python
- Microelectronic Circuits I & II
- Continuous-Time Signal and System Analysis
- Intro. to Electrical and Computer Engineering - introductory circuit analysis, passive filters
- Operating Systems - Low-level systems programming in C/Rust

Technical Skills

- **Programming Languages:** Python, C, C++, Rust, C#, Java, JavaScript, Verilog (HDL), MATLAB
- **Design & Simulation:** LTSpice, OnShape (CAD & FEA), Fusion 360 (CAM), MasterCAM, FEMM, Ansys HFSS
- **Software:** Git, STM32 Toolchain, ESP-IDF, Foxglove, Desmos, SymPy, Z3 Prover, FreeRTOS
- **Miscellaneous:** Soldering (SMD & rework), CNC manufacturing, 3D printing, Linux, SDRs, oscilloscopes, FMEA

About

I'm a passionate electrical engineering student and relentless learner. I show my excitement for engineering through my many projects, activities, and hobbies. I aim to apply and further my knowledge and skills by solving challenging and interesting technical problems in creative ways

Projects

BLDC Motor Controller — [Project Page](#)

May 2025 — Present

- Designed a FOC-capable brushless motor controller targeting 480W peak power output
- Created a comprehensive thermal model to characterize transient/pulsed power handling capacity.

RISC-V SoC — [GitHub](#)

Aug 2024 — Jan 2025

- Implemented the `rv32im` instruction set using Verilog to synthesize with the yosys toolchain
- Simulation of HDL designs with Verilator, Icarus Verilog, and cocotb; testbenches in SystemVerilog
- Pipelined core capable of 33.4 MIPS @ 50MHz with flash bootloader on Lattice ECP5 LFE5U-25F

Rocket Tracker — [Project Page](#)

Apr 2023 — Aug 2024

- Designed hardware, firmware, and software for a custom amateur rocketry tracking system (KiCAD, ESP-IDF, PyQT)
- Created a flexible data link protocol for streaming telemetry information in real time to custom ground station software
- Developed FreeRTOS based firmware for high frequency data logging and fault-tolerant control of the tracker

Extracurricular Activities

WPI High Power Rocketry Club — *Electronics & Programming sub-team member*

Aug 2025 — Present

- Rocket antenna design lead — responsible for telemetry and video antennas for the club's two rockets

WPI Formula SAE — *Electrical team member*

Aug 2025 — Present

- PCB design, firmware development, real-time signal processing algorithms for custom magnetic sensors
- Telemetry, log analysis, troubleshooting

WPI Wireless Association — *Historian*

Aug 2025 — Present

- Amateur Extra class ham radio operator, participant in contesting and foxhunts

FIRST Robotics Competition Team 2530 "Inconceivable"

Aug 2019 — Jun 2025

- Team captain, robot design/CAD lead (2024-25).
- Helped lead the team to the FRC World Championship in 2024 and 2025