Falls Church, Virginia
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Christopher Boerner

Computer Engineer

Active Secret Clearance
Eagle Scout
boernerc20.me

Computer Engineering Master's graduate specializing in embedded systems, digital design, and electronics, with hands-on experience in FPGA development, PCB design, and hardware/software integration.

Skills

Languages: Bash, C/C++, Java, MATLAB, Python, Verilog

Software: Arduino, Cadence Virtuoso, CMake, FreeCAD, Git, KiCad, Linux (Arch), LTSpice, OpenCV, Pandas, Qt, SciKit-Learn, STM32Cube, SolidWorks, Xilinx Vivado/Vitis

Hardware: PCB Design, Breadboarding, Computer Architecture, Oscilloscope, Multimeter, Soldering

Education

Master of Engineering in Computer Engineering — May 2025
Virginia Tech – Focused on Computer Systems – GPA: 3.8 — *Alexandria, Virginia*
Advisor: Dr. Cindy Yi (Virginia Tech)

Bachelor of Science in Computer Engineering — May 2024
Virginia Tech – General Computer Engineering – GPA: 3.6 — *Blacksburg, Virginia*

Technical Experience

Virginia Tech | Embedded Systems (*ECE 2564*) — Sep 2024 – Dec 2024
Grader — *Blacksburg, Virginia*

- Graded homework assignments and coding projects.
- Used C language for TI MSP432 microcontroller-based systems.
- Collaborated with TAs and the professor to ensure smooth course operations.

Grenoble Electrical Engineering Laboratory | Expe-SmartHouse Project — Jun 2024 – Aug 2024
Research Intern — *Grenoble, France*

- Programmed Arduino Mega and ESP8266 microcontrollers to control appliances, display energy usage, and publish MQTT messages in a network of scalable smart home mockups.
- Built a centralized broker system and Python-based energy manager on Raspberry Pi to enable real-time power monitoring and coordination with a simulated photovoltaic source.

Deloitte | Cybersecurity Infrastructure Development — Jun 2023 – Aug 2023
GPS Advisory Cyber Intern — *Rosslyn, Virginia*

- Worked with a government client on improving their cybersecurity framework using an identity governance and administration solution.
- Developed visuals and process cycles for a business requirements document.
- Improved soft skills by participating in conferences and leading presentations.

Systems Software Research Group | Computer Architecture Research — Sep 2022 – May 2023
Student Researcher — *Blacksburg, Virginia*

- Created a script to automatically run complex benchmarks on a FPGA-based heterogeneous computer system and collect data.
- Implemented RISC-V 64-bit architectures on a Xilinx FPGA.
- Modified the instruction execution phase of the processor to prevent cyber attacks.

Projects

Academic & Professional Projects

FPGA-Accelerated Echo-State Network (Master's)
Nov 2024 – May 2025

- Developed a floating-point ESN and online RLS trainer on a Zynq SoC for 2×2 MIMO-OFDM channel prediction.
- Enabled real-time dataset streaming via Ethernet and achieved sub-1 ms radio inference with UART performance feedback.

Aircraft Data Acquisition Device (Senior Design)
Aug 2023 – May 2024

- Designed a modular sensor system with custom PCBs and FFT-capable firmware for audio, vibration, and temp/humidity data.
- Developed STM32 and Artemis firmware for RF communication, SD logging, and touchscreen UI in rugged, battery-powered enclosures.

Personal Projects

Minecraft Jukebox Replica
Jun 2025 – Present

- Designing a custom PCB for power delivery, RFID sensing, and analog audio amplification/output.
- 3D printed functional jukebox and game-inspired discs; inserts trigger playback of soundtracks via embedded RFID tags.

FPV Drone Design and Build
May 2023 – Aug 2023

- Assembled a 5" FPV drone from preselected parts; soldered electronics and configured GPS telemetry with battery fail-safes.
- Set up ELRS radio link and PID tuning; captured stabilized GoPro footage for social media content.