

Colby Miller

801-918-9981 • colbyjmiller@gmail.com • Cottonwood Heights, UT

SUMMARY

Computer Engineering (ECE) student with hands-on experience in digital logic, RTL design, and hardware verification, backed by coursework in circuit analysis and electromagnetics. Self-taught in Verilog and PC-level hardware troubleshooting. Seeking a hardware or digital design internship.

EDUCATION

University of Utah, Salt Lake City, UT Expected 2029

B.S. Computer Engineering • Intended M.S. Electrical & Computer Engineering (ECE), 2030

Relevant coursework: Circuits I (AC/DC circuit analysis), Physics for Scientists & Engineers (PHYS 2220, in progress), Calculus I & II, Object-Oriented Programming in Java (CS 1420), Data Structures & Algorithms (CS 2420, in progress).

Brighton High School, Cottonwood Heights, UT Class of 2023

Graduated with Honors • 3.98 GPA • National Honor Society

TECHNICAL SKILLS

Digital design: Verilog (RTL), digital logic, combinational & sequential logic, Karnaugh mapping, testbench-based verification, golden-model and mutation testing

FPGA: iCEBreaker (iCE40), open-source synthesis & place-and-route (Yosys/nextpnr)

Circuits & EE fundamentals: Circuit analysis (AC/DC, Circuits I); electromagnetics coursework in progress (PHYS 2220)

Hardware: PC building & part selection, component troubleshooting, Chromebook diagnostics, printer maintenance

Programming: Java (coursework, CS 1420, currently taking CS 2420), Python (coursework)

Tools: Icarus Verilog, GitHub, Windows 11

Languages (spoken): English (native); Spanish (conversational / professional working proficiency)

PROJECTS & SELF-DIRECTED WORK

ASIC Tapeout: Polyphonic Synthesizer (TinyTapeout)

- Designed a polyphonic synthesizer in Verilog, prototyped and validated it on an iCEBreaker FPGA (open-source Yosys/nextpnr flow), then taped it out on the TinyTapeout SKY26c shuttle.
- Self-taught hardware verification methodology: directed testbenches, golden-model comparison, and mutation testing to validate design correctness before tapeout.

PC Building & Systems Integration

- Built 12+ custom PCs, selecting compatible components and assembling systems for a range of budgets and use cases.
- Diagnosed and resolved issues stemming from the hardware, UEFI/BIOS, and software levels.

EXPERIENCE

Production Professional (Back of House): Chick-fil-A Jul 2026 - Present

- Prepared food to standardized recipes and safety procedures in a fast-paced back-of-house role, working efficiently as part of a team.

Full-Time Missionary: The Church of Jesus Christ of Latter-day Saints Jun 2024 - Jun 2026

Texas Houston East Mission (Spanish speaking)

- Used Spanish daily to working proficiency; trained and mentored two new missionaries.
- Managed daily schedules and priorities independently, with minimal supervision.
- Taught individuals daily, in a clear and straightforward manner.

Engineering Scholars Program: University of Utah Fall 2023 - Spring 2024

Formal Verification Research (Polynomial-Based Methods)

- Contributed as a first-year participant, applying digital logic fundamentals and tools including ABC and SAT solvers to research on polynomial-based formal verification methods.

IT Intern: Canyons School District Sep 2022 - Jul 2023

- Diagnosed, triaged, and repaired hundreds of Chromebooks, isolating hardware vs. software faults and returning devices to service.
- Serviced onboard computers and camera systems on school buses; maintained printers across multiple sites.
- Tracked and prioritized work through a ticketing system and supported users directly on the help desk.