Elias Kountouris

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Technical Skills

Languages	Verilog, C++, C, Python, MATLAB, Bash, Javascript
Software	Vivado, OrCAD, Allegro, KiCad, LTspice, Linux, SolidWorks, Git, Jira, Arena, Grafana
Equipment	Soldering (0402 Components), Reflow Oven, Oscilloscope, Heat Gun

Experience

Level Home - Electrical Engineering Intern May 2022 - August 2022

- Designed a testing board that verifies serial cable signal integrity to make it easier to identify a common source of error.
- Identified and resolved a critical issues in a future product resulting in a lower quiescent current and significantly longer battery life.
- Assisted in the creation of dev-kits for future products by designing the board's power system and by working with PCB Design Engineers to resolve issues.
- Communicated with overseas manufacturers to review and document test results of products in the EVT stage so common sources of failure could be identified and solved.

Waterloo Rocketry - Electrical Team September 2021 - Present

- Designed sensor board in rocket's CAN system to collect data on rocket health and trajectory during flight.
- Developed firmware for the boards, using I^2C and SPI, to interact with sensors and output data in real-time.
- Developing new power system for ground-side electronics to make setup simpler and to prevent failure due to overheating.

Zappos - Software Developer June 2020 - September 2020

- Utilized PyTorch to create a sentiment analysis algorithm to analyze reviews of products and adjust on-site product recommendations accordingly. Improved site retention by 10%.
- Implemented natural language processing with PyTorch to improve site search results by analyzing search queries for key topics.

Featured Projects

Simple CPU - Verilog, Vivado

- Used a small instruction set to create a primitive 8-bit CPU based on the von Neumann Architecture.
- Created custom memory, register, ALU, and control path modules to implement the ISA.
- Designed testing module to interface with CPU registers and memory so storage could be read in real-time.

Smart Floor Vent - KiCad, LTspice, C

- Worked with mechanical engineering students to create a prototype for a smart floor vent that could open / close based on room temperature.
- Designed controller board based on constraints given from the mechanical team to interface with debug tools, I/O, thermocouples, and motor controllers.
- Developed a power system with a boost converter to power digital logic, analog sensors and motors from either USB or batteries.

Keyboard - PCB and Firmware - KiCad, C

- Designed custom keyboard based on open source design to create a keyboard tailored to my needs.
- Developed and flashed custom firmware for the board using open source QMK Library.

Education

University of Waterloo 2021 - 2026

Candidate for Bachelor of Applied Science in Computer Engineering GPA: 3.99