Ross M. Anderson

Computer Engineering co-op at McMaster University

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Summary

- Excellent **circuit design** and **programming skills** developed from time spent in McMaster Rocketry, **spearheading multiple major projects**.
- **2 years** of skills in designing electromechanical parts using CAD and EDA alongside **4 years** of technical drawing and drafting skills.
- Knowledgeable of various 3D printing and CNC technologies from **building a laser CNC from scratch** and modifying custom G-code.

Professional Experience

Ciena Corp. | Hardware Design Engineer May 2023 – Aug. 2023

- Drove the design and productization of **3 bleeding edge** optical interconnect solutions, reducing connector size by **60%** and **doubling** effective speeds, enabling **800G datacenter connectivity**.
- Conducted application verification and FPE testing on **25 interconnect solutions**, utilizing lab test equipment and measurement techniques such as **VNAs Oscilloscopes, and scanning electron microscopes** to assess performance and reliability of various products.

Longo Brothers Fruit Markets Inc. | PPF Clerk Aug. 2019 – Sept. 2022

- Delivered exceptional customer service in a fast-paced environment, **honing communication skills** and ensuring customer satisfaction.
- Developed strong **problem-solving abilities** by efficiently managing customer orders and resolving issues, demonstrating **adaptability**.

Projects

McMaster Rocketry Club Sept. 2022 – May. 2023

- Designed an **ESP32 data-logging PCB** in KiCad for first-year students to use to learn about the software and EDA aspect of the club.
- Made a custom STM32 power management and distribution board used in the Marauder II rocket, overcoming challenges like **reducing EMF/crosstalk, thermal management, and dimensional constraints**.

5-Band Desktop Graphic Equalizer Mar 2023 – Aug. 2023

- Designed an **op-amp based graphic equalizer** using **Altium** with an extruded aluminum housing and custom faceplates for **under $110**.
- Features a **true bypass relay** for noiseless operation, balanced RCA inputs/outputs, and carefully selected audio grade components.

Arduino-Controlled Laser CNC Jan. 2022 – Jun. 2022

- Built a laser CNC machine from scratch capable of engraving wood for **under $150** using Autodesk Fusion360 and **filament-based 3D printing** to rapidly prototype potential designs.
- Uses an Arduino Uno bootloaded with custom **open-source firmware**, allowing for both **vector and raster** image engraving.

Skills

Electrical

- Altium Designer and KiCad used for multiple personal projects and work with McMaster Rocketry.
- Cadence Allegro used for high-speed signal and interconnect verification for various PCBs and backplanes at Ciena.

Software

- C++ / Arduino C
- Python
- JS, HTML, CSS, and Firebase used to build a food bank logistics app for Deltahacks 9.
- ReactJS used to code an educational training app for volunteers at a non-profit healthcare organization.
- Git / Github
- MATLAB

CAD

- SolidWorks and Fusion360 used on various projects involving FEA and GD&T.
- Designed a flight-sim joystick using Fusion 360's T-spline workflow.
- Created a planetary gear mechanism that converted linear motion to rotary in Inventor, landing a first-place victory in creativity for a McMaster University competition.

Education

McMaster University
2018-2022

Nelson High School
2022-2026