LUCAS CRASTON

Computer Systems Engineering at Carleton University

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SELF FUNDED PROJECTS

Custom Lattice FPGA dev board

Summer 2022

- Designed a 2 layer board integrating an **ICE40 FPGA**, **USB** interface, and **flash memory**. This is an **open-source**, cost effective development board for FPGA designs

Off Grid Irrigation System Version 2

Summer 2021, 2022

- Built and programmed a smart garden timer that manages the distribution of water and nutrients to plants, allowing users to automate their garden and reduce water waste by **80 percent**
- Version 2 incorporates a **custom PCB** and eliminated the majority of pre-built modules. Using discrete components and new software reduced power consumption by **10X**

Lab Equipment Automation

Winter 2021–Present

- Designing **Python** scripts to automate the use of lab gear such as **oscilloscopes**, **power supplies**, and **waveform generators** allowing users to record more accurate measurements and automate testing
- Using the **NI-VISA** back end to send **SCPI** commands to instruments, allowing users to set custom channel options remotely and analyze incoming measurement data for plotting it in **MATLAB** or **Python** for easy examination

IPhone, Android, Laptop and PC Repair

2018–Present

- Troubleshooting Apple, Windows, and Android devices to find the most cost effective repair and replace all serviceable components
- Reducing electronic waste by fixing **100 percent** of devices to date and selling them for a profit

Homemade Radio Transceiver

Fall 2021

- Created a radio receiver and transmitter controlled by a **Microcontroller** with a range of 1100m to use in drones and RC cars for land surveillance
- Designed, assembled, and tested a **PCB** from scratch to reduce size and improve the usability of the product

EDUCATION

- Bachelors of **Computer Systems Engineering**
- COOP student: available **4-12 months**, full time starting January 2023
- Deans list with 10.08/12 CGPA
- Entry level scholarship

EXPERIENCE

Hardware Engineer

Ford Motor Company

May 2022 – August 2022 | Kanata, CA

- Designed, tested, and characterized **DC-DC power supplies** and **power delivery systems** for the new FNV and SYNC platforms
- Performed worst-case circuit-analysis on power electronics to verify components for use in new designs
- **Automated** the power teams testing suite with **Python** to eliminate manual testing, increase measurement accuracy, and reduce verification time by weeks

Computer Sales Advisor

Best Buy

Oct 2019 – Oct 2020 | Ottawa, CA

- Provided accurate and economical hardware and software recommendations to clients by remaining up-to-date on new hardware and software releases
- Developed persuasive communication skills by providing exceptional customer service which resulted in being one of the top part-time sales advisors with over **$1000/hour** average sales

Office Administrator

Beaver Boxing Club

2018 – 2020 | Ottawa,CA

- Managed membership sales and provided program recommendations to new customers
- As a youth boxing mentor and **team Ontario athlete**, I helped guide and teach new members while modelling leader behavior

TRANSFERABLE SKILLS

- Leveraged my fantastic interpersonal skills and bilingualism to proficiently communicate with clients and teams members to complete tasks and meet objectives.
- Developed excellent problem solving skills to effectively test and measure circuits with equipment such as oscilloscopes, multi-meters, power supplies and waveform generators.
- Solved **C/C++** and **Python** programming problems to implement new embedded systems designs.
- Created a passion for engineering and electronics by pursuing my own projects and taking initiative on implementing and completing goals.
- Developed versatile set of skills by working independently and in groups, allowing me to be an asset to any team or handle individual assignments.
- Experience with **Linux**, **LaTex**, **Git** for version control, and **verilog** for **FPGA development**.