LUCAS CRASTON

Computer Systems Engineering at Carleton University

lucascraston@cmail.carleton.ca | 613-406-2832 | 12, Brookdale Ave, Nepean ON, K2E 6X2 | lucascraston | Website

EXPERIENCE

Electrical Engineering Integration - Internship

Lockheed Martin

Sept 2023 – present | Kanata, CA

- Developing a Python app that automates the graphing of simulated antenna data, allowing our team to evaluate the antennas coverage across a range of frequencies and azimuths on the Canadian Surface Combatant Ships

Digital Engineer - Internship

MDA, Satellite Systems

Jan 2023 – Aug 2023 | Montreal, CA

- Created an over-current, over-voltage protection system for the DC power rails on the EGSE back-plane to protect the **Canadarm3** processors during testing
- Developed a serial interface between an ARM micro-controller and our EGSE back-plane, in C, to monitor the status of tests and set control parameters

Hardware Engineer - Internship

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

- 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

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 designs and debug complex software systems
- Experience with **Linux**, **LaTex**, **Git** for version control, and **verilog** for **FPGA development**.

SELF FUNDED PROJECTS

Lithium Battery Management System

- Designed, assembled, and tested a 2 layer surface mount PCB that provides USB charging to a Lithium Battery along with protection against 5 fault conditions
- Version 2 is a 4 layer board with a 5V boost converter and a 3V3 Regulator, along with a consolidated parts list to save space and cost in production

Custom Lattice FPGA dev board

- 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

- 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

- 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

Homemade Radio Transceiver

- 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 at Carleton University**
- COOP student: available **4** months, full time starting May 2024
- Deans list with 10.08/12 CGPA
- Entry level scholarship