

EDUCATION

University of British Columbia

Bachelor of Applied Science - Computer Engineering

Expected Graduation 2025

SKILLS

Programming: Python, C/C++, Java, Verilog, ARM/x86 Assembly, ReactJS, ExpressJS,

Software: Git (Github, BitBucket), ModelSim, Quartus, Altium Designer, Jenkins

Management: Jira, Confluence, TestRail, Agile Methodology

TECHNICAL EXPERIENCE

Firmware Validation Co-op

May. 2022 - Dec. 2022 (Present)

Motorola Solutions, Avigilon

- Developed pytest and Selenium-based test frameworks to validate the SoC firmware, web UIs, manufacturing workflows, and VMS client/server applications for security IP camera products
- Implemented Python scripts to automate functional testing, utilizing knowledge of networking protocols (HTTP/HTTPS, RTP/RTSP, UDP, TCP, IP), digital imaging, and audio/video coding alongside REST and SOAP APIs
- Constructed an IPv4/6 DHCP server for an isolated network in a Linux environment for test and development
- Deployed and maintained Microsoft Azure and Jenkins Pipelines for the use of post-build and sanity test runs
- Debugged and modified firmware in C++ for custom docker-based builds for use on camera devices under test

Firmware & Electrical Engineer

Sept. 2021 - Present

UBC Mars Colony (Engineering Design Team), Sabatier Reactor Project

- Collaborated on the Sabatier Fuel Reactor Project to compete at the 73rd annual International Astronautical Congress (IAC) in Paris, 2022
- Developed and tested an RTOS control system firmware on an Arduino ATmega2560 microcontroller to manage mass-flow controller valves, thermocouples, pressure transducers, and heat tape relays to facilitate the sabatier chemical reaction generating methane
- Modified and developed PCB schematics for the electrical control system with Altium Designer, analyzing manufacturer documentations to develop footprints for IC units and routing connections

Python Instructor

June 2021 - Aug. 2021

RoboPlanet Robotics Academy

- Instructed online summer courses, providing a platform for youth to learn and develop a proficiency in introductory Python and programming concepts
- Applied CSTA K-12 Standard learning goals for developing lesson plans in various fundamental coding topics

PROJECTS

Web-Enabled Robot Alarm Clock Chaser

- Constructed an alarm robot using a Raspberry Pi 3 that drives away from you and forces you to get out of bed
- Developed an Express backend web service handling REST post requests with the Raspberry Pi, setting alarm audio and time and enabling onboard LCD, motor driver, imaging, and ultrasonic modules with Python multiprocessing

Automated CWL Course Registration Web-Scraper

- Developed a Python script to automate the UBC course registration process and provide SMS and email updates
- Applied the Selenium web driver package to control Chrome web browser activity and scrape HTML elements

FPGA RISC Machine

- Developed a RISC machine in Verilog using finite state machine controllers and random-access memory and I/O
- Simulated test bench modules using ModelSim, analyzing waveform diagrams of multi-bit signals for debugging
- Interfaced with a DE1-SoC development board using peripherals to read and display register contents, compiling and ensuring synthesizable hardware using Quartus