

## Technical Skills

C++/C/CMake	Python	Linux	React/React Native	Robot Operating System (ROS)	Microsoft Suite
GitHub	Flask	JavaScript	HTML/CSS	SolidWorks/Catia	MATLAB/Simulink

## Work Experience

**Honda of Canada Manufacturing** – Automation Engineer Intern

May 2024 – **Present**

- Engineer, write, and debug **PLC** programs, integrating with sensors, conveyors, robots (**Fanuc, Yaskawa**), HMI, Manufacturing Execution System (**MES**), and equipment for cycle time and machine status in production
- Implementing **Honda's IIoT** Smart Factory project across **Civic, CRV, and Engine Plant** to transition Preventative Maintenance from Time Based schedules to Cycle Based metering reducing costs by over **1.1 million annually**

**Thomson's Metal by Design** – Product Design Intern

June 2023 – August 2023

- Designed and fabricated metal products for customers, to fix, replace or create industrial parts or equipment
- Restructured company's file organization while developing 3D models and production drawings on **SolidWorks**

## Teams and Projects

**Queen's Autodrive Team** – Autonomy and Systems Integration Team Member

September 2022 – April 2024

- Programed software nodes integrating **ROS2** and **C++** with the goal of creating an autonomous car
- Implementing and writing efficient algorithms to return data regarding local road information using **C++**
- Coded an **FSM** in **Python** and implemented it on a **Chevy Bolt** for autonomous start up sequencing and control

**Autonomous and Remote Controlled Robot** – Mechatronics Engineer

January 2024 – April 2024

- Integrated and designed subcomponents using servos, DC motors, a microcontroller and embedded controls in **C++** to attain a specialized robot that outperformed opposing robots in a competition
- Debugged a **Python** codebase for **UDP** communication to ensure reliability in real time remote control functions

**Autonomous Mobile Robot for Air Quality Mapping** – Lead Mechatronics Engineer

January 2023 – April 2023

- Developed a prototype autonomous mobile robot by integrating **LiDAR, IMU, and CO<sub>2</sub> Sensors** with motor drivers and encoders using Raspberry Pi with **ROS**, expanding skills in open-ended mechatronics design
- Programed the full stack structure using **Flask** with **Python, JavaScript** and **HTML** for a web-based user interface

**Automatic Pet Feeder** – Mechatronics Engineer

September 2023 – December 2023

- Engineered a device that monitored pet food levels and pet activity using an **FSR**, camera and other sensors
- Designed a server-client codebase using **Flask, Python, and React Native** with a live camera feed for ease-of-use

**International Engineering Def Hacks Worldwide 3.0** – Systems Engineer

July 2021

- Developed a system for COVID safety measures by engineering and integrating electrical and mechanical components with software and a web server being awarded **1<sup>st</sup> place** in the **worldwide** COVID Innovation category
- Worked with a small team through design iteration to achieve a minimum viable product for presentation

**SDL2 C++ Personal Game Development Project** – Software Engineer

May 2023 – **Present**

- Collaborated with a classmate to code a 2D, **C++**, **SDL2** video game with development of a custom game engine
- Implemented collision detection and input handling in **C++** with the use of inheritance and polymorphism

**Attitude Determination Control System Team Member** – Queen's Engineering Satellite Team

September 2022 – April 2023

- Modeled geocentric **satellite orbits** using **Python** and **C++** for the relocation of the craft for satellite imaging
- Innovated a query based algorithm to take in a two-line element set at a satellite's epoch to return velocity and position vectors
- Analyzed changes in the project scope communicated by the team and improved the runtime by roughly 10 times

## Education

**Mechatronics and Robotics Engineering (GPA 3.88)** – Queen's University

September 2021 – **Present**

- PEO Simcoe-Muskoka Chapter **Professional Engineers Scholarship**, Distinction of Dean's Scholar
- Data Structures and Algorithms: Algorithm development and numerical and statistical analysis of data sets
- Intro to Robotics: Derived kinematics and dynamics for robotic systems and programmed force and position control systems