Joey Yang

1-647-966-3926 yangj30@mcmaster.ca 132 Israel Zilber Dr, Maple, ON L6A 0L4, CA joeyjyyang joey-yang

Profile Summary

Diligent and results-driven Mechatronics Engineering student possessing a well-rounded software development skillset forged through industry achievements, open-source projects, and academic excellence. Passionate about tackling challenges on the forefront of Robotics, with a specialty in building innovative software solutions that bridge robotic systems with human users. Critical thinker able to adapt and lead in fast-paced work environments.

Education

B.Eng., Mechatronics Engineering (Co-op) Level 5
Expected Completion April 2021

McMaster University, Dean's Honour List, 3.7 GPA
Undergraduate Teaching Assistant

Relevant Coursework

Robotics, Software Development, Data Structures & Algorithms, General & Real-Time OS, Embedded Systems Design, Predictive & Intelligent Control (Kalman Filters, Particle Filters, SLAM), Networks and Security.

Employment

Software Consultant
September 2019 to Present

Freelance

- Building software solutions and automated tools for start-ups and small businesses ranging from mobile apps to purchase order generators.
- Interfacing with clients regularly to understand product needs, provide technical guidance, and convey results.

Software Developer Intern
June 2020 to September 2020

Clearpath Robotics, Inc., Research Solutions

- Led backend development of a web-based GPS navigation tool that allows users to interface with outdoor robots (ROS) and issue missions remotely via satellite map.
- Designed frontend UI components that drew the appeal of sales and engineering managers.
- Setup test plans and physically tested GPS navigation package on Clearpath Robotics's Husky UGV.

Simulation Engineer Intern
May 2018 to August 2019

Clearpath Robotics, Inc., OTTO Motors

- Leveraged discrete-event and physics-based simulation software to develop large-scale robotic material transport solutions, including a simulation model that played a major role in winning a $8M USD, 100+ robot fleet size deal.
- Extended proprietary simulation software library with functionalities for tracking robot and mission KPIs/metrics.
- Developed automation and data visualization tools to pipeline inputs into and parse outputs out of simulations.
- Performed multiple regression on real robot battery data and improved simulation model accuracy from 57-95%.
- Collaborated with PMs to identify requirement specifications, plan timelines, and present deliverables.

Personal Projects

Autonomous Robot Lawn Mower (Research Project)
May 2020 to Present

- Engineering an autonomous robot able to mow lawns safely and efficiently.
- Implementing sensor fusion of IMU and UWB data to accurately localize robot position in outdoor environments.

BNO055 Linux Hardware Driver (ROS Package)
July 2020 to September 2020

- Developed an open-source software package that interfaces Adafruit's BNO055 9-DoF sensor with any Linux system over I2C and publishes data to ROS.

Guardian Surveillance (Intelligent Surveillance System)
April 2020 to July 2020

- Architected a lightweight, affordable, and smart surveillance system that leverages OpenCV's Haar feature-based cascade classifiers on live camera feeds to detect intruders, and ROS to alert users' IoT devices via text and email.

Languages and Technologies

Robotics:	ROS, OpenCV, Simio, Simulink	General-Purpose:	C++, Python, JavaScript
Embedded Systems:	MCU, FPGA, Raspberry Pi, Arduino	Web Development:	React, Express/Node, SQLite
Sensors:	IMU, LiDAR, Camera, UWB	App Development:	React Native