

# Joey Yang

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## Profile Summary

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Diligent Mechatronics Engineering student possessing 2 years of working experience in software and simulation development. Passionate about tackling complex problems using software, with proficiency in building innovative software solutions that bridge robotic systems with humans.

## Education

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B.Eng., Mechatronics Engineering (Co-op) Level 5

Expected Completion April 2021

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

Relevant Coursework

Robotics, Data Structures & Algorithms, General & Real-Time OS, Embedded Systems Design, Predictive & Intelligent Control (Kalman Filters, Particle Filters, SLAM)

## Employment

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Freelance Software Consultant

September 2019 to Present

- Building software solutions for start-ups and small businesses ranging from mobile apps to PO 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 and issue missions remotely via satellite map.
- Set up 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 simulation software to develop 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 mission metrics.
- Developed an automated tool that generates thousands of simulated missions into simulation models.

## Personal Projects

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Outdoor Localization (Autonomous Robot Research Project)

May 2020 to Present

- Engineering a localization solution that fuses IMU and UWB sensor data to accurately estimate robot pose in outdoor environments.

BNO055 Linux Hardware Driver (ROS Package)

July 2020 to September 2020

- Developed an open-source software package that interfaces the BNO055 IMU with any Linux system over I2C, and publishes data to ROS.

Guardian Surveillance (Intelligent Surveillance System)

April 2020 to July 2020

- Architected a smart surveillance system on the Raspberry Pi that leverages OpenCV and live camera feeds to detect intruders, and alert users via text and email.

## Languages and Technologies

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