Joey Yang

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Profile Summary

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

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

McMaster University, Dean's Honour List, 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

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

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

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		