Unmanned Mobile Robot Platform (Research Project) June 2020 to Present

* Building
* Implemented

BNO055 Hardware Driver (ROS Package) July 2020 to Present

* Architected
* Configured

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

* Constructing
* Implemented

Sense HAT Hardware Driver (ROS Package) April 2019 to July 2019

* Architected an open-source software package that interfaces the Raspberry Pi Sense HAT board with ROS.
* Developed executable nodes with C++ and Python to extract IMU sensor readings and publish data to ROS topics.

Personal Projects

General-Purpose: C, C++, Python, JavaScript

Robotics & Simulation: ROS, RViz, Gazebo, Simio, Simulink

Embedded Systems: MCU, ARM, FPGA, Raspberry Pi, Arduino

Sensors: IMU, LiDAR, Camera, UWB

Web Development: React, Redux, Express/Node, SQLite

Statistical Tools: R, MATLAB, Excel

Languages and Technologies

Profile Summary

Diligent fifth-year Mechatronics Engineering student focused on tackling complex problems on the forefront of Robotics. Passionate about developing innovative software applications and tools, especially open-source software for interfacing sensor hardware with the Robot Operating System (ROS). Praised by former managers and coworkers for having exceptional learning, critical thinking, teamwork, and communication abilities.

Education

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

McMaster University

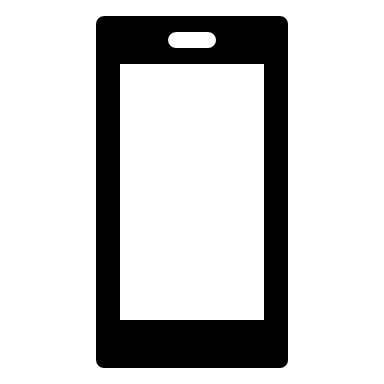
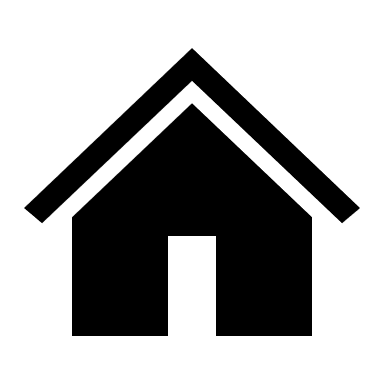
Dean’s Honour List, 3.7 GPA (A-)

Relevant Coursework

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

Joey Yang

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Applications Engineering, System Simulation Intern May 2018 to August 2019

Clearpath Robotics, Inc., OTTO Motors

* Conveyed the value of Clearpath’s OTTO autonomous material transport robots to customers by leveraging discrete-event and physics-based simulation software and advanced data analytical techniques.
* Developed a high-level Simio simulation model that played a major role in winning a $8M USD, 100+ fleet size deal.
* Designed system simulation environments in Gazebo and analyzed ROS log files to debug simulated robots.
* Performed data acquisition and multiple regression analysis to validate the simulated OTTO 100 battery model; improved the model accuracy from 57% to 95%.
* Built an Excel VBA based tool that automatically generates robot missions to be pipelined into simulation software.
* Transformed raw simulation data into meaningful and presentable visualizations using R and Python (ggplot2).

Employment

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