

# Joey Yang

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## Profile Summary

Diligent Mechatronics Engineering graduate possessing 3 years of working experience in software and simulation development, with emphasis in autonomous vehicle and mobile robot technologies. Passionate about building innovative software and hardware solutions that interface humans with robots; proficient at doing so using ROS. Avid contributor to the ROS open-source community.

## Languages and Technologies

General-Purpose:	C++, Python, JavaScript	Embedded Systems:	MCU, FPGA, Raspberry Pi, LabJack
Robotics:	ROS, OpenCV	Sensors:	IMU, LiDAR, Camera, UWB, RTK GPS
Simulation:	Gazebo, Simio, Unreal Engine 4	Web Development:	React, Redux, Express/Node, SQLite
Tools:	Git, JIRA, Confluence, Linux		

## Employment

Software Engineer January 2021 to Present  
ARVI AI Inc.

- Implement localization, mapping, and navigation capabilities on an electric commercial vehicle through ROS.
- Integrate LiDAR, IMU, camera, RTK GPS, and controller hardware onto the electric commercial vehicle; develop corresponding ROS drivers and controls for steering and throttle.
- Build software interface between simulation and ROS to test and tune autonomous point-to-point navigation.

Software Developer Intern June 2020 to September 2020  
Clearpath Robotics Inc., Research Solutions

- Led backend development of a web-based GPS navigation tool that interfaces with outdoor robots via ROS, and allows users to 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.
- Wrote an automated tool that generates thousands of simulated missions into simulation models.

## Personal Projects

Affordable Outdoor Localization (Research Project) May 2020 to Present

- Engineering an outdoor localization solution that fuses low-cost IMU and UWB sensors via a Particle Filter to accurately estimate robot pose.

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

- Authored and maintaining an open-source software (ROS) 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 ROS, OpenCV, and live camera feeds to detect intruders, and alert users via text and email.

## Education

B.Eng., Mechatronics Engineering (Co-op)  
McMaster University, Dean's Honour List, Teaching Assistant, 3.9 GPA