Joey Yang

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Profile Summary

Diligent Software Engineer possessing 2 years of professional working experience in software and simulation development, with emphasis in autonomous vehicle and mobile robot technologies. Passionate about building robust and innovative software solutions that seamlessly interface hardware systems with humans and real-world applications.

Languages and Technologies

Programming:	C++, Python, JavaScript	Embedded:	MCU, Jetson, Raspberry Pi, Motors
Robotics:	ROS, OpenCV, Simulation, Networking	Sensors:	LiDAR, Camera, IMU, GPS, UWB, Arms
Perception:	Kalman Filter, Particle Filter, Graph SLAM	Tools:	Git, Linux, Bash, Jenkins, Agile, Docker
Navigation:	Path Planning, Controls, Obstacle Detection	Web/Mobile:	React, React Native, Node, Express, SQLite

Employment

Software Developer — July 2021 to Present
Clearpath Robotics, Platform OS

- Innovate and maintain open-source and proprietary software for ROS 1 and ROS 2 mobile robotic platforms.
- Develop internal software tools and test suites to support integration, client success, and production teams.
- Execute custom software integrations of sensors, manipulators, and networking devices with robots.
- Collaborate with cross-functional engineering teams to deliver on complex customer projects.

Software Engineer — January 2021 to June 2021
ARVI AI, Autonomous Driving

- Implemented and demoed localization, mapping, and autonomous navigation on a Polaris GEM electric vehicle.
- Developed peer-to-peer middleware services for distributed hardware, software, and simulation systems.
- Wrote software drivers to integrate sensors, steering and throttle controllers with real vehicle, simulation, and ROS.

Software Developer Intern — June 2020 to September 2020
Clearpath Robotics, Platform OS

- Spearheaded Node/Express backend development of a web application that allows remote user interface with ROS robots, including manual control and sending autonomous navigation missions via satellite map.
- Built responsive frontend user interface components using React to enhance user experience.

Simulation Engineer Intern — May 2018 to August 2019
OTTO Motors, Simulation Services

- Designed and developed discrete-event simulation models of autonomous mobile robots and battery discharge behaviours in manufacturing facilities, to conceptualize and evaluate material transport solutions for customers.
- Extended internal simulation software library with crucial features, such as key metric trackers for robot missions.

Personal Projects

Affordable Outdoor Localization, Research Capstone — May 2020 to April 2021

- Led engineering design and implementation of a low-cost outdoor localization solution, which fuses low-cost IMU and UWB sensors using a Particle Filter to estimate robot pose.

Guardian, Intelligent Surveillance System — April 2020 to July 2020

- Architected an intelligent surveillance system on a Raspberry Pi that leverages ROS, OpenCV, and live camera data to detect intruders, and alert users via text and email.

Education

Bachelor of Engineering, Mechatronics Engineering (Co-op)
McMaster University, Dean's Honour List (3.8 GPA), Teaching Assistant