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 end-to-end software solutions that interface complex hardware systems with humans and human tasks; proficient at doing so using Linux and ROS. Avid contributor to the open-source robotics community.

Languages and Technologies

General-Purpose:	C++, Python, JavaScript, Bash	Embedded Systems:	MCU, Raspberry Pi, Jetson, LabJack
Robotics:	ROS, OpenCV, SLAM	Sensors:	IMU, LiDAR, Camera, UWB, GPS
Simulation:	Gazebo, Simio, Unreal Engine	Tools:	Git, JIRA, Confluence, Linux

Employment

Software Developer
July 2021 to Present

Clearpath Robotics, Platform OS

- Innovate and maintain open-source and proprietary software for Clearpath Robotics' mobile robotic platforms.
- Execute complex software integrations of sensors, manipulators, and networking devices with robot platforms.
- Develop internal software tools to assist cross functional teams and expedite production processes.

Software Engineer
January 2021 to June 2021

ARVI AI, Autonomous Driving

- Implemented localization, mapping, and navigation on an electric vehicle by leveraging ROS.
- Integrated perception sensors and steering and throttle controllers onto the electric vehicle to enable autonomy.
- Developed middleware to ensure reliable communication between hardware, autonomy software, and simulation.

Software Developer Intern
June 2020 to September 2020

Clearpath Robotics, Platform OS

- Spearheaded backend development of a web application that allows users to interface with ROS robots remotely and send autonomous navigation missions via satellite map.
- Built frontend components for the web application's user interface to enhance user experience.

Simulation Engineer Intern
May 2018 to August 2019

Clearpath Robotics, Simulation Services

- Designed high-level simulation models of autonomous mobile robots in customer facilities to conceptualize and evaluate material transport solutions.
- Extended simulation software library with custom objects and metrics for tracking missions.

Personal Projects

Affordable Outdoor Localization, Research Project
May 2020 to April 2021

- Led the engineering design of an affordable outdoor localization solution that fuses low-cost IMU and UWB sensors via a Particle Filter to estimate robot pose.

Guardian Surveillance, Smart Surveillance System
April 2020 to July 2020

- Architected a smart surveillance system on the Raspberry Pi that leverages ROS, OpenCV, and camera data 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, 3.8 GPA