

Peter Quinn

SOFTWARE DEVELOPER - ROBOTICS

Executive Summary

With a Master of Science in Electrical and Computer Engineering and over 3 years of professional experience in software and hardware development (5 YoE post Bachelor degree), I am passionate about using technology to solve problems. Adaptable, reliable, and focused on delivering value.

Skills

Software: AWS/Terraform, Bash/Shell, Bazel, C/C++, CI/CD, Docker, Git, Github Actions, Jenkins, Jira, Linux/Ubuntu, Object Oriented (OOP), OpenCV, Pytest, Python, Pytorch, ROS, Ruff, SQL, VSCode

Hardware: Arduino, CAD, CAN, FPGA, I2C, PCB, RS232, SPI, UART

Professional Experience

Software Developer - Sensor Calibration Team, Torc Robotics, Montréal, QC 2023 - pres.

Software Design and Architecture - Architected and led development of Python libraries for vision based sensor calibration and monitoring (cameras, lidars, radars, GPS/IMU) on ARM and x86 systems.

Tooling and Metrics - Developed computer vision based tools and metrics that tracked ROS sensor data quality on CLI and cloud dashboards, reducing incident review time by over 90%, from hours to minutes.

Project Management - Acted as scrum master for a team of six developers, coordinating projects with management across multiple generations of vehicle platforms.

Quality and Mentoring - Ensured software quality through configuration of automated CI/CD testing pipeline, and mentoring junior team members on best practices via code reviews.

Full Stack Developer - Fleet Team, Algolux, Montréal, QC (acq. by Torc Robotics) 2021 - 2023

Computer Vision - Developed computer vision based software packages using OpenCV and Python for aligning and calibrating cameras and lidars through ROS on company test vehicles.

Data Management - Configured bash scripts and Linux systems to automate daily data uploading from test vehicles following data collections, ensuring reliability of data processing pipeline.

System Integration - Integrated sensors (camera, lidar, radar, GPS) and designed custom circuitry with C++ firmware to power, synchronise, and test equipment, analyzed signals using oscilloscope.

Education

M. Sc., Electrical and Computer Engineering, McGill University, Montréal, QC 2019 - 2021

Research Areas - Differentiable Rendering, Computer Graphics, Simulation, Machine Learning

Thesis - Developed a novel, differentiable, physically based light transport simulation environment in Python, using PyTorch to enable GPU acceleration and learn simulation properties.

Publ. - "Differentiable Path Tracing by Regularizing Discontinuities", DiffCVGP workshop at NeurIPS 2020

B. Eng., Honours Electrical Engineering, McGill University, Montréal, QC 2015 - 2019

Personal Projects

Embedded ML Computer Vision for Smart Home Control 2021

Fine tuned, quantized and deployed a [PyTorch model](#) to a KV260 FPGA using Vitis AI, won 3rd prize in [AMD-Xilinx Adaptive Computing Challenge](#)