# Peter Quinn

SOFTWARE AND HARDWARE 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, Bazel, C/C++, CI/CD, Docker, Git, Github Actions, Jenkins, Jira, Linux/Ubuntu, OOP, Pytest, Python, Pytorch, ROS, Ruff, SQL, Visual Studio Code
**Hardware**: Arduino, CAD, CAN, FPGA, I2C, PCB, RS232, SPI, UART

## Professional Experience

**Software Developer - Sensor Calibration,** *Torc Robotics, Montréal, QC* 2023 - pres.
***Software Design and Architecture -*** Architected and led development of Python libraries for sensor calibration and monitoring (cameras, lidars, radars, GPS/IMU) on embedded and x86 systems
***Tooling and Metrics -*** Developed 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

**Hardware Developer - Sensors,** *Algolux, Montréal, QC (acq. by Torc Robotics)* 2021 - 2023
***System Integration -*** Integrated sensors (camera, lidar, radar, GPS) with ROS on company test vehicles
***Low Level Debugging -*** Modified OEM sensor drivers, and analyzed signals using oscilloscope
***Hardware Design -*** Designed circuitry and C++ firmware to power, synchronise, and test equipment

## 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

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

## Personal Projects

**Custom Embedded Control Unit for LEDs** 2023
Designed a custom circuit board, 3D printed enclosure, and ESP32 firmware with C/C++

**Embedded ML on FPGA for Gesture Recognition for Smart Home Control** 2021
Fine tuned, quantized and deployed a PyTorch model to a Xilinx KV260 FPGA board using Vitis AI
Won 3rd prize in AMD-Xilinx Adaptive Computing Challenge