Waleed **Ahmed**

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Skills

Languages:	C++, C, Python, JavaScript, Java, C#, HTML, CSS, QML, Assembly
Libraries & Frameworks:	ROS, OpenCV, Qt, Node, React, Express, Flask, Google Test, TensorFlow
Technologies:	Git, Linux, QNX, Perforce, SVN, MongoDB, Jenkins, Docker, LaTeX, Jira

Experience

Huawei
Toronto, ON

Autonomous Vehicles Software Engineering Intern — *Sep 2020 – Dec 2020*
- Developed a unit test suite for a Frenét frame motion planning stack with **90%** code coverage using **Google Test**
- Designed and implemented a path building library using **C++** to construct a variety of reference paths to test planning algorithms on
- Used **C++** and **Matplotlib** to extract insights from vehicle trajectory data that helped expose flaws in motion planning algorithms

Qualcomm
Toronto, ON

Automotive ADAS Software Engineering Intern — *Jan 2020 – Apr 2020*
- Developed system and application software for an ADAS and autonomous driving platform in **C/C++**
- Accelerated performance of a **computer vision SDK** by an average of **20x** by leveraging available hardware and software architecture in automotive focused Snapdragon SoCs

Christie Digital
Kitchener, ON

Software Engineering Intern — *May 2019 – Aug 2019*
- Worked closely with QA and UI/UX designers for user interface development and maintenance to meet release deadlines across a wide variety of platforms using the **Qt** framework in **C++** and **QML**
- Significantly reduced the effort needed to maintain code health through software architecture redesign and setup of a continuous integration pipeline on a **Jenkins** build server that included unit tests with **90%** code coverage using **Google Test**

Synaptive Medical
Toronto, ON

Video Software Engineering Intern — *Sep 2018 – Dec 2018*
- Improved visibility of biological tissue during surgical procedures through color manipulation using **C++ (OpenCV)** and **C#**
- Enabled intuitive usage of a color manipulation algorithm through a web interface built with **JavaScript**, **HTML**, and **CSS**
- Post-processed image data in **Python** using **Pandas**, **Numpy**, and **Matplotlib** to analyze color manipulation

P&P Optica
Waterloo, ON

Industrial Imaging Software Engineering Intern — *Jan 2018 – Apr 2018*
- Developed a robust image acquisition framework for rapid line scan imaging of food on an industrial conveyor belt
- Implemented image correction algorithms and post-processing for industrial cameras in **Python** using **Numpy**, **OpenCV**, and **Matplotlib**

Projects

Autonomous Robot Racing ○
UW Robotics
- Managed development for a robot that competed in the **International Autonomous Robot Racing Competition**
- Developed software architecture in **ROS** and **C++** for perception, mapping, and path planning using a stereo camera, IMU, and LiDAR

Synviz ○
UofTHacks VII (3rd place)
- Built an IoT device using a **Raspberry Pi** that could decode spoken text from facial input
- Developed a backend web server in **Python** using **Flask**, **Google Cloud Storage**, **OpenCV**, and **TensorFlow**

Agilite ○
DeltaHacks V
- Built an image processing pipeline in **Python** using **OpenCV** and **TensorFlow** capable of recognizing handwritten text from an agile board

Bicyle Sensor ○
ECE 298 Course Project
- Designed hardware and software for an ultrasonic object detection module aimed at cyclists on the **MSP430** low power MCU platform

Education

University of Waterloo

B.ASc Computer Engineering, Option in Artificial Intelligence — *Sep 2017 – Apr 2022*
- Udemy: Web Development Bootcamp, Computer Vision
- Coursera: Self-Driving Cars Specialization, Machine Learning