

# Waleed Ahmed

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## Skills

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

## Experience

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### Zoox

Foster City, CA

#### Software Engineering Intern

Sep 2021 – Dec 2021

- SW HIL team, supporting integration testing and validation of a cutting edge AI software stack

### Huawei

Toronto, ON

#### Autonomous Vehicles Software Engineering Intern

Sep 2020 – Dec 2020

- Developed a unit test suite for a Frenet 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

## Projects

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### 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

### Bicycle 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

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### University of Waterloo

#### B.ASc Computer Engineering

Sep 2017 – Apr 2022

- Relevant Coursework: Distributed Computing, Robot Dynamics & Control, Cooperative & Adaptive Algorithms, Computer Networks, Database Systems, Operating Systems, Compilers, Systems Programming & Concurrency, Algorithms & Data Structures
- Online Coursework: Web Development Bootcamp, Self-Driving Cars Specialization, Machine Learning, Computer Vision