WALEED AHMED

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SKILLS

C++ | Python | C | C# | QML | JavaScript | MATLAB | Java

OpenCV | ROS | Qt | .NET | TensorFlow | Google Test

Git | SVN | Linux | Windows | Bash | Jira | Jenkins

EXPERIENCE

Automotive ADAS Software Engineering Intern

Qualcomm

Jan 2020 – Present | Markham, ON

- Developing software features involving machine learning, cameras, graphics, and computer vision for an autonomous vehicles platform

Software Engineering Intern

Christie Digital

May 2019 – Aug 2019 | Kitchener, ON

- 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**

Video Software Engineering Intern

Synaptive Medical

Sep 2018 – Dec 2018 | Toronto, ON

- Improved visibility of biological tissue during surgical procedures through colour manipulation using **OpenCV** in **C++**
- Facilitated full control of camera settings through a **.NET** application that served as a frontend interface to a serial communication protocol
- Enabled intuitive usage of a colour 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 colour manipulation
- Used **C#** to integrate image processing algorithms with existing software architecture in a Windows environment

Industrial Imaging Software Engineering Intern

P&P Optica

Jan 2018 – Apr 2018 | Waterloo, ON

- Developed a robust image acquisition framework for rapid line scan imaging of an industrial conveyor belt in the food industry
- Implemented image correction algorithms and post-processing for industrial cameras in **Python** using **Numpy**, **OpenCV**, and **Matplotlib**

DESIGN TEAMS

Path Planning Core Member

WATonomous

Sep 2019 – Present

- Developing a simulation tool to efficiently test trajectory planning and costmap generation using **MATLAB**, **C++** and **ROS**
- Contributing to software development for a level 4 autonomous vehicle competing in the **SAE AutoDrive Challenge**

Software Team Lead

UW Robotics

Apr 2018 – Aug 2019

github.com/uwrobotics/RR2019

- 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 sensor
- Implemented a lane detection algorithm capable of handling variable lane widths, curvature, and lighting conditions at a maximum of 25 Hz using **OpenCV**
- Introduced a new lightweight traffic light detection algorithm using **OpenCV** that reduced overhead and false positive rate

PROJECTS

Agilite

DeltaHacks V

Jan 2019

github.com/w29ahmed/Agilite

- Built a **Python** backend using **OpenCV** and **TensorFlow** capable of recognizing handwritten text from an agile board

EDUCATION

B.ASc Computer Engineering

University of Waterloo

Sep 2017 - Apr 2022

Online Coursework

- Coursera: Machine Learning (Andrew Ng)
- Udemy: Machine Learning A-Z
- Udemy: Computer Vision