Waleed **Ahmed**

wahmed.dev | waleed@wahmed.dev | waleed-a | w29ahmed

Skills

Languages: C++, C, Python, Rust, Bash, JavaScript, Java, C#, SQL
Libraries & Frameworks: ROS, Protobufs, DDS, OpenCV, Node, React, Express, Flask, Google Test, Pytest
Tools & Technologies: Git, Linux, Bazel, Docker, Elasticsearch, Grafana, Bamboo, Jenkins, Jira, LaTeX

Experience

Zoox *Foster City, CA*
Software Engineer *Jun 2022 – Present*
- Developing software infrastructure using **C++** and **Python** for integration test platforms which utilize simulation and vehicle logs for system validation, safety clearance, and latency testing of driving software
- Successfully investigated and resolved lidar emulator performance issues, reducing fault occurrences from **60%** of runs to **0%**, thereby enhancing the stability and reliability of sensor playback during integration tests
- Implemented fault injection capabilities for lidar playback, enabling fault response testing and safety clearance of driving software releases
- Regularly triaged issues, led investigations, and monitored test platform health as an on-call engineer
- Seamlessly transitioned mission-critical data used for on-call operations and updated its associated data pipelines from a deprecated **ElasticSearch** cluster to a more stable **OpenSearch** cluster, ensuring continuous data flow and service availability
- Developed and maintained **Grafana** dashboards tailored to deliver essential metrics, aiding on-call engineers in their response efficiency

Zoox *Foster City, CA*
Software Engineering Intern *Sep 2021 – Dec 2021*
- Developed software features for an integration testing framework capable of running autonomy software on representative hardware
- Designed and developed an improved sensor playback system that enabled more efficient and accurate playback during integration tests

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*
- Developed user interfaces with **Qt** in **C++/QML** and bolstered code quality with setup of a **90%** code coverage **Jenkins** CI pipeline

Synaptive Medical *Toronto, ON*
Video Software Engineering Intern *Sep 2018 – Dec 2018*
- Advanced surgical visibility of biological tissue through color manipulation using **C++ (OpenCV)** and **C#**

Projects

Vizia *Capstone Project (Apr 2021-2022)*
- Wearable glasses that can extract and communicate information from an image to a visually impaired user through audio transcription
- Consists of glasses with **Raspberry Pi** for image capture, **Flask** web app for computer vision processing, and an **iOS** app for audio playback

Autonomous Robot Racing (Software Lead) *UW Robotics (May 2018 - Aug 2019)*
- 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

Education

University of Waterloo
B.ASc Computer Engineering *Sep 2017 – Apr 2022*
- Notable Coursework: Distributed Computing, Programming for Performance, Robot Dynamics & Control, Autonomous Vehicles