Mohammed Fulwala

+1-(647)-913-7051 | mohammed.fulwala@hotmail.com | www.linkedin.com/in/mafulwala/ | https://github.com/mohful

Education

York University Sept. 2019 - Dec. 2023

Software Engineering (Specialized Honours) in Big Data - GPA: 3.4/4.0 *Toronto, ON*

- Member of the Dean's Honour Roll.
- Relevant Courses: Object Oriented Programming, Data Structures and Algorithms, Software Development and Design, Operating Systems, Machine Learning, Database Systems, Data Mining, Information Networks.

Technical Skills

Languages: Java, C++, Python, SQL, C, C#, JavaScript, R
Tools and Frameworks: React, Flask, PyTorch, Sklearn, Docker, Unity 3D, AWS (Amplify, Cognito, S3, SES, EC2), Gradle, JUnit

Experience

Research Assistant May 2023 – August 2023

York University - Bergeron Entrepreneurs in Science and Technology Lab *Toronto, ON*

- Worked on a project to develop a machine learning approach for inspecting power lines for damage.
- Developed a Ground Server web application to facilitate heavy ML object detection computing, image storage, and client interface display using **React.js** and **Python**.
- Modified and implemented the **YOLOv5** object detection ML model, specializing it for power line inspection and damage detection. Improved the model's accuracy and efficiency by fine-tuning it on specific powerline datasets.
- Utilized **ROS2** for hardware programming, implementing node-based software design to enable complex procedures for robotic systems.

Research Assistant June 2022 – May 2023

York University - Elder Lab in Human and Computer Vision *Toronto, ON*

- Worked on a project to develop a machine learning approach for identifying players in team sports video through their jersey numbers.
- Invented a **CNN** to perform binary classification of player images based on the visibility of their jersey number using a dataset of manually labelled hockey player images.
- Contributed to the field of Computer Vision by individually presenting my findings at the **Lassonde Undergraduate Research Conference 2022**. Evaluated MOT on hockey dataset to identify players based on movement patterns, adapting open-source code and using PyTorch in Python.
- Evaluated **Multiple Object Tracking (MOT)** on hockey dataset to identify players based on movement patterns, adapting open-source code and using **PyTorch**.

Teaching Assistant May 2022 – August 2022

York University *Toronto, ON*

- Supported over a **100 students** in understanding the fundamental concepts of Operating Systems.
- Assisted the course director by providing office hours, invigilating, grading assessments, and developing course material.
- Demonstrated great time management by working **over 40 hours** as part of the teaching assistant load alongside full-time research position at university.

Software Developer Intern January 2022 – April 2022

SEQ Technology LLC *Toronto, ON*

- Constructed a full stack application with a **RESTful API** server from scratch that performs internal admin operations, allowing HR to focus more on HR-focused operations than front office work. Improved efficiency of the department by **50%**.
- Enhanced the security of the application and protected sensitive user data by implementing User Authentication using **Amazon Web Services** tools like **Cognito** and **Amplify**.

- Streamlined the onboarding process at SEQ by inventing an admin portal using Cognito API that allows admins and HR to create new users in the user pool easily.
- Containerized the entire application and managed all services using **Docker**, thus improving the development quality along with maintainability and portability of the application.
- Used **React.js**, **Python**, **Flask** and **MySQL** for the duration of this internship.

Projects

VideoCo | *React.js, Python, Docker, SQL* July 2023

- Designed and implemented a secure e-commerce platform specializing in video sales. Implemented user authentication and accessed other functionality via third-party APIs.

Fraud Detector | *Python* June 2023

- Designed and implemented a scalable fraud detection architecture that ingests and analyzes large volumes of transactional data from the results of PCA transformation of financial records to maintain anonymity of parties involved.
- Leveraged the Multilayer Perceptron Algorithm to capture intricate relationships and make predictions based on learned patterns.

Chatbox | *C++, Qt Framework* May 2023

- Developed a versatile and user-friendly Chatbox application to facilitate seamless communication and foster real-time interaction between users.
- Ensured the security and privacy of users by implementing robust security practices like end-to-end encryption and user authentication

Allegro Tab Converter | *Java, JavaFX, JacksonXML, CSS, Gradle, JUnit* Jan 2021 – April 2021

- Improved feasibility for the music research community by developing a software system that converts music tablature in text format to a MusicXML file format for use in digital playback programs and websites.
- Leveraged knowledge **Gradle** for build automation and dependency management, and **JavaFX** to design rich client applications that operate consistently across diverse platforms.
- Ensured software quality of the application through thorough unit testing of the application using **JUnit**.

Extracurriculars

Muslims Students' Association June 2022 – April 2023

- Managed a team of 8 subordinates to coordinate weekly events of over 500+ attendees.
- Successfully secured sponsorships and donations from local businesses and organizations, totaling $5,000 to support multiple events throughout the year.
- Led the planning and execution of a week-long campus-wide event promoting understanding and appreciation of Islamic culture and heritage through a comprehensive program of activities, including lectures, panel discussions, cultural performances, and interactive workshops, engaging over 3000 attendees.

Lassonde Games 2022 Organizer September 2021 – April 2022

- Worked with a team of six students in organizing an interdisciplinary tri-hackathon.
- Executed the creation of competition challenges, advertising, finances, and maintaining robust lines of communication between 136 students and 21 judges in a 100% online setting for three consecutive days.

York Engineering Competition - Communications October 2020

- Placed 3rd in the entire competition.
- Formed a coherent argument with a skilled colleague that clearly identifies the social, economic, political and environmental impacts of the concept of Adverse Selection.