Mohammed Fulwala

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EDUCATION

York University   Sept. 2019 - Dec. 2023
Software Engineering (Specialized Honours) in Big Data - GPA: 3.33/4.0   *Toronto, ON*

- Relevant Courses: Object Oriented Programming, Data Structures and Algorithms, Software Development and Design, Operating Systems, Machine Learning, Database Systems, Data Mining, Big Data Systems, Information Networks.

TECHNICAL SKILLS

Languages: Java, C++, Python, SQL (MySQL, PostgreSQL, NoSQL), C, C#, JavaScript
Tools and Frameworks: React.js, Node.js, Flask, PyTorch, Scikit-learn, 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**.
- Enhanced **YOLOv5** for power line inspection and damage detection, boosting accuracy from **50% to 70%** and improving efficiency through targeted dataset fine-tuning.

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** with an **accuracy** of **95%** 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**.
- Utilized **Unity 3D** to create synthetic hockey player images to improve the accuracy of the CNN model
- 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*

- Built a full-stack application with a **RESTful API** server to streamline HR operations, resulting in a **50%** increase in departmental efficiency.
- 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

AuctionHub | *Java, Docker, AWS, SQL*   Jan 2023 - April 2023
- Designed and implemented a secure online auction e-commerce platform.

Market Basket Analysis | *Python*   Sept 2023 - Dec 2023
- Conducted a market-basket analysis on data sets from a Belgian Retail Store and Netflix.

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.

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.

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.