Muhammad Hassan Tariq

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Education

University of Waterloo — Waterloo, ON, Canada
Master of Engineering in Electrical and Computer Engineering — *Jan. 2024 - May 2025*

University of Calgary — Calgary, AB, Canada
Bachelor of Science in Software Engineering — *Sep. 2018 - May 2023*

Technical Skills

Languages: Python, Java, Groovy, C#, C/C++, JavaScript, TypeScript, XML (XSLT, XQuery), HTML/CSS, SQL
Technologies: React, Node, Express, OpenGL, Spring, JUnit, MongoDB, Docker, GCP(BigQuery, BQML, VMs), DS/ML(Scikit-learn, Pandas, NumPy, PyCaret, XGBoost, Keras, PyTorch, Spark)

Experience

Software Implementation Engineer — Jul. 2023 - Jan. 2024
Sidetrade | Professional Services

- Active communication with client to implement solutions on Sidetrade's industry leading augmented invoice platform that has processed 593M+ invoices. Solutions include leveraging **Java**, **Groovy**, and **XML** technologies to implement feature enhancements and fixing bugs reported by client.
- Implemented a PDF compression algorithm that allows for the flexibility of PDF uploads.
- Developed an invoice versioning system to allow the upload and processing of multiple invoices.
- Implemented various fixes regarding clients' needs regarding the UI, invoice processing and workflows, database, logging and reports, and connectivity with business partners.

Software Engineer Intern — Jan. 2022 - Aug. 2022
General Motors | Map Data Tools

- Implemented bugfixes in **React** to enhance the user experience of the map viewing tool.
- Developed additional logging features in **C#** for a map data parsing application.
- Implemented a major bugfix in **C#** that impacted the key production pipeline for the Cadillac Super Cruise map, involving false and missing calculations in the map data. The Cadillac Super Cruise system has mapped over **400k miles** using LiDAR technology and has been used by individuals for over **34 million miles**.

Software Engineer Intern — Jan. 2021 - Dec. 2021
TELUS | Advanced Analytics and AI Enablement

- Developed various ML classification models using **sci-kit learn and PyCaret** for predicting pet ownership on app usage data. **Logistic Regression and LightGBM** showcased the best results with **∼86% and ∼87% accuracy** respectively. Productionized the model on **GCP**.
- Improved usability of an automated **Python** script that generated a list of **nearly 20,000 target customers** through documentation and code enhancements such as allowing the use of multiple locations when geofencing, and migrating the script to **GCP**.
- Created a **SQL** query to leverage 5G data and create a list of **600K+ customers** across **1800 5G sites** as part of a network improvement churn reduction project.
- Developed an **LSTM deep learning model** for predicting network experience perception with **∼93% accuracy**, and presented findings to a group of **over 100 people including executives**.

Projects

Finberry Trading Application | *Engineering Capstone Design Project* — Sep. 2022 - Apr. 2023

- Developed an end to end web application with a team of 4 engineers that improves the financial literacy of users by offering different learning tools such as financial coaching, literary articles, and a simulated stock environment.
- Application is tested to handle **over 10,000 user requests per minute** with **over 50 concurrently registered users** and showcases real-time stock information which is pulled through the TwelveData API.
- **React** and **Typescript** were used for the front-end with **MUI** for styling, **Express** for the backend, **Firebase** for authentication, **Stripe** for managing payments, **MongoDB** as the database and hosting using **Vercel**.