Aly Shariff

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Qualifications

Languages: English, French
Programming Languages: Python, JavaScript, HTML/CSS, Racket, SQL, C++, TypeScript
Technologies/Frameworks: PyTorch, Tensorflow, NumPy, Scikit-Learn, Pandas, React.js, React Native, Express, Flask, TailwindCSS, MongoDB, Node.js
Software and Dev Tools: GitHub, Git, REST API, VSCode, LATEX, Excel.

Experience

Software Developer Intern **May 2024 – August 2024**
Toronto Dominion Bank - TD Invent Enterprise Innovation *Toronto, ON*

- Developed a personal finance simulator in Python using **Monte Carlo methods** and **Q-Learning**, optimizing decision-making strategies with a **50% increase in total net worth** across **1,000+ simulated scenarios.**
- Modernized cybersecurity at TD by developing an **email phishing detector**, powered by a fine-tuned BERT model, with **low memory usage and 97% accuracy**, while leveraging **Explainable AI techniques.**
- Deployed the phishing detector to **Microsoft Azure** and launched it as an **Outlook add-in**. Project was demoed to the Head of Enterprise Innovation at TD Bank.
- Built an AI chatbot powered by a **RAG pipeline**, using **GPT-4**, **Pinecone**, and **Cohere Reranking for a 20% performance boost**. Deployed on **Azure** for seamless use by **10K+ employees**.

Software Developer **March 2023 – August 2023**
DoorHan International *Remote*

- Designed an automated cross-platform quote delivery software that reduced the time delivery times by **80%**.
- Developed an admin dashboard **using React** to streamline contractor management, **increasing sales by 10%.**
- Created a **mobile app using React Native** with both online and offline capabilities for contractors to generate automatic quotes based on client configurations, featuring compatibility filtering and pricing calculations.
- Developed a **NodeJS and Express backend with a PostgresSQL database** for cross-platform communication.

Co-Founder and CEO **June 2020 – August 2022**
AXYAS Tutoring Service *Montreal, QC*

- Generated **$45,000 in sales** in 2 years, by ensuring excellent service and consistent online advertising (Facebook Ads).
- Managed **50 tutors** who helped over **100 satisfied students**, demonstrating leadership and organizational skills.

Projects (Click on project titles to learn more)

Deep Reinforcement Learning in FPS Games (WAT.ai) | *Python, PyTorch, OpenAI Gym, Google Cloud Platform* **2024**

- Research Project focused on implementing **Q-Learning** and **PPO** for a player agent in the DOOM FPS video game.
- Training latest Machine Learning models, such as **Vision Transformers, Mamba, and xLSTMs in a model-free reinforcement learning environment**.

Re.live (1st place Cohere Prize @ UofT Hacks | *React, Cohere, Azure, OpenCV, Mediapipe* **2024**

- **Implemented a Stable Diffusion model from huggingface** to make photos dance to music and come to life.
- Integrated **React** frontend with backend that uses **Cohere RAG** to sift through a dataset and select songs and images based on the user's mood.

Artificial Sign Language (Science Fair ISEF Project) | *Python, Tensorflow, OpenCV, SciKit-Learn, Mediapipe* **2023**

- **1 of 8 chosen on Team Canada for ISEF 2023**, with **$15,000+** in science fair awards
- **Computer vision research project** focused on translating American Sign Language to English with deep learning. Collaboration with **Professor H. Sahraoui at Université de Montréal**.
- Data analysis and web scraping in C++ and Python. Computer Vision with OpenCV, Tensorflow and MediaPipe.
- Developed **LSTM model** that could **translate 25 gestures** with **custom augmented dataset**, while acquiring a comprehensive understanding of machine learning concepts **(ANNs, CNNs, RNNs, transfer learning)**.

DriveSense (Hack The North Finalist) | *Python, OpenCV, Django, React Native, JavaScript* **September 2023**

- Developed a **mobile application employing machine learning** to assess the driving quality of individuals on the road, analyzing factors like speed fluctuations and leveraging computer vision for environment visualization.
- Implemented **YOLOv5 algorithm for car plate detection, traffic light colors and road signs**, developed a **custom algorithm to measure distances** in the driving environment, and created a **Django backend** to communicate with the mobile frontend.

Education

University of Waterloo **2023 – 2028**
Bachelor of Computer Science - 3.99 GPA *Waterloo, ON*