Om Patel

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EDUCATION

University of Toronto | Toronto, Ontario **SEPTEMBER 2023 – PRESENT**

Bachelor of Science in Computer Science and Physics (Co-op) | GPA - 3.5/4.0

SKILLS

Programming Languages: Python, Java, JavaScript, HTML, CSS, R, SQL, Kotlin

Frameworks/Tools: PyTorch, TensorFlow, Scikit-learn, Pandas, Matplotlib, Qiskit (IBM Quantum computing), React, Linux (Kali), Unix, Git, Framer Motion, Java Swing, Cohere API, Startgg API

Technical Skills: Statistical Programming, Quantum Computing, Machine Learning, Sentiment Analysis, Clean Architecture, SOLID Principles, Data Analytics, Computer Vision

Soft Skills: Problem-Solving, Communication, Leadership, Collaboration, Adaptability, Creativity, Time Management

EXPERIENCE

ML Developer + AI Open-Source Dev | UTMIST | Toronto, ON **OCTOBER 2024 - PRESENT**

- Enhancing chatbot responses using GPT-3.5, **Differential Transformers**, and a **Retrieve & Generate** (**RAG**) framework, implementing **ACM**-based recommendation systems for personalized suggestions.
- Implementing a vector database to efficiently store and retrieve high-dimensional embeddings, improving content retrieval accuracy and optimizing AI-driven interactions.
- Designing a custom query engine that integrates RAG for context-aware question answering, combining vector-based search with LLM-powered synthesis to provide real-time, contextually relevant answers.
- Developing scalable AI-driven solutions using open-source tools, optimizing infrastructure, integrating ML models, and ensuring seamless deployment and performance monitoring for large-scale AI applications.

Associate | UoftAI, ProjectX | Toronto, ON **SEPTEMBER 2024 - PRESENT**

- Currently assisting in organizing ProjectX 2024, an AI/ML competition with a $10,000+ prize pool, focusing on Co-Learning in Multimodal AI, which enhanced team collaboration and participant engagement
- Collaborating with team members to manage event logistics, communicated with participants and sponsors, and ensured compliance with submission guidelines, resulting in a well-organized and successful event

Volunteer Placement Specialist | PICS | Surrey, BC **JUNE 2023 – AUGUST 2023**

- Streamlined volunteer placement processes and led SDG-aligned sustainability projects, improving efficiency and coordination with educational institutions and NPOs through a comprehensive database.

PROJECTS

Sentiment Analysis for Predicting Stock Trends - Python, PyTorch, Scikit-learn, Pandas, Matplotlib [github]

- Implemented sentiment analysis on over **1.7 million** data points, comprising tweets and financial news articles, by leveraging **FinBERT** and **RoBERTa** models to accurately gauge market sentiment.
- Integrated sentiment scores with historical stock data, utilizing advanced data preprocessing and feature engineering techniques, enhancing market forecasting capabilities and providing actionable insights for financial decision-making.
- Developed and trained predictive models in **PyTorch**, applying rigorous hyperparameter tuning and validation processes, which resulted in a **70%** accuracy in forecasting stock price movements.

Automated Tournament Bracket Management – Java, StartGG Api, Cohere Api, Kotlin [github]

- Developed a local tournament bracket management system using **Start.gg API** in **Java** to import and update tournament data, enabling tournament organizers to seed players, report match results, and track payments efficiently.
- Implemented AI-driven features with the **Cohere API** to generate dynamic tournament descriptions and player profiles with match statistics and player analysis, integrated into a **Kotlin**-based frontend for real-time updates, tournament progress, and player insights, enhancing advertising and recruitment efforts.

Quantum Computing Simulations and Qiskit Summer School - Python, Qiskit, IBM Quantum Platform [github]

- Explored quantum circuit transpilation, optimization, and Hamiltonian dynamics on noisy hardware, simulating and testing circuits on the IBM Quantum Platform. Investigated **quantum machine learning** techniques, demonstrating the potential of quantum algorithms to enhance traditional ML methods.

ACOMPLISHMENTS

- Represented U of T at OUF, providing insights into CS, Physics, and co-op programs to prospective students.
- Contributed as Citizen Scientist in Zooniverse, classifying astronomical data and supporting research projects.
- From Big Bang to Dark Energy by University of Tokyo Certificate obtained on Coursera.