Mohammed Zaid Mir

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Education

University of Western Ontario — London, ON, Canada
B.Sc. (Honors) in Computer Science, Minor in AI and Game Development — *April 2026*

- ***GPA:*** 4.0/4.0 (91.3%), Dean's Honor List (2022, 2023), Western Scholarship of Distinction
- ***Coursework:*** Computer Architecture, Machine Learning, Data Structures & Algorithms, Operating Systems, Discrete Mathematics, Statistics, Quantum Computing, Linear Algebra, Game Theory, Complex Analysis, Parallel Programming

Technical Skills

Languages: Python, Java, C#, C, TypeScript/JavaScript, PostgreSQL/MySQL, R
Frameworks: NumPy, Pandas, Matplotlib, Seaborn, PyTorch, TensorFlow, cvzone, Neo4j, React, Node.js
Tools: Git, Unix/Linux, Unity, Unreal Engine, LaTeX

Experience

Banking Analytics Lab — London, ON, Canada
Machine Learning Engineer — *July 2024 - Present*

- Developed and fine-tuned deep learning scripts comparing investment decisions for self-directed and advised investors
- Utilized NumPy and Pandas to clean and process over 350,000 rows of financial data, increasing efficiency by 95%
- Implemented and optimized training algorithms on CUDA GPUs using PyTorch, reducing runtimes by 23%

Western Investment Club — London, ON, Canada
Junior Data Scientist — *September 2023 - Present*

- Researcher for $300k long-only student-led value investing fund, specializing in the Consumer Retail Group
- Acquired and applied valuation techniques, including DCF analysis and comparison of financial multiples
- Utilized SQL and Pandas to analyze complex datasets, refining our investment strategy by identifying key financial indicators and trends in consumer retail companies, thereby enabling more informed investment decisions

University of Western Ontario — London, ON, Canada
Undergraduate Student Researcher — *January 2023 - June 2023*

- Designed a novel Java program based on Google's PageRanking Algorithm to rank web pages of the Dept. of Mathematics Website, using Jsoup for efficient parsing, extraction, and manipulation, ensuring comprehensive data processing
- Researched hidden Markov model training algorithms, Bayesian unsupervised learning, approximate inference problems
- Utilized JProfiler and VisualVM to optimize numerical algorithms, enhancing computational efficiency and accuracy by 30%

Projects

Coinbase | *Flask, JSON, Postman*

- A decentralized blockchain encompassing block creation, transaction management and proof of work
- Implemented a RESTful API with Flask to enable interaction with blockchain, transaction creation, block mining
- Integrated a consensus algorithm to ensure blockchain integrity and resolve conflicts across decentralized nodes

SignSpeak | *TensorFlow, NumPy, cvzone*

- A real-time ASL converter that tracks and classifies hand gestures into corresponding letters
- Developed a robust preprocessing pipeline for image data to enhance model performance and reliability
- Trained and fine-tuned CNNs optimizing the model with transfer learning to boost gesture recognition accuracy

SMS - Filter | *Scikit-learn, Pandas, Flask, Postman*

- An SMS spam detection system using Scikit-learn to accurately classify messages as 'spam' or 'ham'
- Trained and validated models on a dataset of 5,574 SMS's achieving a high accuracy score of 98.8%
- Created a Flask-based API for real-time spam detection, enabling seamless integration into web applications

mittensOS | *Pygame, NumPy*

- A comprehensive chess engine implementing negamax search with alpha-beta pruning for advanced AI
- Engineered a robust game state management system to handle move validation, special moves, and game status
- Implemented a depth feature allowing the engine to evaluate multiple moves ahead, enhancing decision making

TileVania | *C#, Unity*

- Utilized Unity's Tilemap API for procedural generation of game levels, ensuring modular and scalable level design.
- Optimized rendering pipelines and memory management, enhancing frame rates and reducing latency for real-time gameplay
- Employed debugging tools and techniques to troubleshoot and resolve runtime errors, memory leaks, and logic flaws