

# 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 200,000 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