

# MOHAMMAD KHAIZE

*Aspiring Quant Trader/Analyst, Investment Banker, Financial Engineer*

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## Summary

Driven by a deep focus on investment banking and quantitative analysis, I am a Computer Science graduate with extensive experience in data driven strategy development across equity, commodities, and derivatives. Proficient in Python, statistical modeling, and machine learning, I apply advanced quantitative techniques to optimize trading strategies and evaluate financial assets. My background includes comprehensive knowledge of financial modeling, asset management, portfolio theory, and investment analysis, with hands-on experience in private equity and venture capital. Passionate about leveraging technology to drive innovation, I am dedicated to delivering precise, data-backed insights and automated solutions that meet the demands of today's fast-paced financial sector. Skilled in research, problem-solving, and leadership, I am committed to excelling in investment banking and quantitative roles, where I can impactfully apply my analytical acumen and strategic mindset.

## Education

### University of Hertfordshire

*Bachelor of Science (honors) in Computer Science and cyber security*

**Relevant Coursework:** *Data Structures & Algorithms, Computational Finance/Financial Engineering, Artificial Intelligence, Discrete Mathematics, Database Systems, Machine Learning & Data Mining, Software Engineering, Cryptography*

## Projects

### 1. AI-Based Fraud Detection for Financial Transactions | Python, Java, Flutter.

January 2024

Developed a machine learning-based fraud detection system that analyzes transactional data to identify potentially fraudulent activities. The system applies advanced algorithms to recognize patterns and anomalies in financial transactions, improving detection accuracy and minimizing false positives. Key responsibilities included data preprocessing, model selection, training, and evaluation, leading to enhanced security and proactive fraud mitigation in financial operations

### 2. AI-Driven Trading Platform for Predictive Analytics and Portfolio Optimization

Ongoing project

Developed a comprehensive AI-powered trading platform integrating advanced deep learning models (LSTM, transformers, DRL) with Realtime data APIs (Trading View, NSE, Binance) for equity, commodity, and derivatives analysis. Enabled custom strategy input via GPT-powered chatbot and automated signal generation with broker APIs. Key features include portfolio optimization (mean-variance, risk parity), stress testing, sentiment analysis, and an interactive real-time dashboard built with Dash. Integrated Explainable AI (XAI) for transparency, and supported advanced statistical tools for market predictions and risk management.

### 3. Portfolio Optimization using the Markowitz Model

Optimized a two-asset portfolio to achieve the optimal risk-to-return trade-off by calculating and maximizing the Sharpe ratio. The project involved constructing the efficient frontier for two assets and identifying the point of maximum Sharpe ratio using the Markowitz Model. Developed a strong understanding of risk-return metrics and portfolio theory, leveraging statistical tools and mathematical models for decision-making. This project reinforced skills in financial analysis and optimization techniques relevant to portfolio management.

### 4. Tweet Emotion Recognition with TensorFlow

Developed a Recurrent Neural Network (RNN) to classify tweets into one of six emotions based on a labeled tweet emotion dataset. Leveraged TensorFlow as the machine learning framework to handle this multi-class classification task in the natural language processing domain. The project involved preprocessing text data, designing and training an RNN model, and optimizing it using algorithms like gradient descent. Strengthened skills in Python programming, neural networks, and TensorFlow while applying theoretical knowledge of RNNs to solve practical text classification problems.

5. Financial Analysis Using Bloomberg Terminal

Utilized Bloomberg Terminal to access and analyze equities and financial data, leveraging key functions like DES, GP, ANR, FA, MODL, and EQRV. Conducted stock market analysis, interpreted financial metrics, and evaluated equity performance for informed decision-making.

Certifications

- Advanced Financial Reporting: Accounting for Business Combinations and Preparation of Consolidated Financial Statements ([University of Illinois Urbana-Champaign](#))
- Financial Accounting: Foundations ([University of Illinois Urbana-Champaign](#))
- Advanced Valuation and strategy – M&A, Private Equity and Venture Capital ([Erasmus University Rotterdam](#))
- Private Equity and Venture Capital ([Università Bocconi](#))
- Investment Management in a Evolving and Volatile World by HEC Paris and AXA Investment ([HEC Paris](#))
- Python and Statistics for Financial Analysis ([The Hong Kong University of Science and Technology](#))
- Introduction to Financial Engineering and Risk Management (Columbia [University](#))
- Corporate Finance Essentials II ([IESE Business School](#))
- Executive data science Capstone ([Johns Hopkins University](#))
- Data Science in Real life ([Johns Hopkins University](#))
- Managing Data Analysis ([Johns Hopkins University](#))
- The Language and Tools of Financial Analysis ([The University of Melbourne](#))
- Finance and Quantitative modeling Specialization (University of Pennsylvania)
- Quantitative Research (University of California, Davis)
- Python for Finance: Investment Fundamentals & Data Analytics (Packt)
- Regression & Forecasting for Data Scientists using Python (EDUCBA)
- Practical Time Series Analysis (The State University of New York)
- Modeling Risk and Realities (University of Pennsylvania)
- Quantitative Foundations for International Business (University of London)
- Trading Algorithms (Indian School of Business)
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Work Experience

Entrepreneurship – Family Business in Wholesale of Luxury Cosmetics

- Manage operations for a wholesale business, overseeing financial planning, budgeting, and supplier relationships to ensure efficiency and profitability.
- Develop and execute growth strategies, expanding the customer base and optimizing inventory management while maintaining strong client relationships

McDonald's | Cashier (November 2022-june2023)

Handled cash and card transactions with accuracy, developed strong communication skills by interacting with a diverse customer base in a fastpaced environment. Contributed to store efficiency by assisting in restocking, maintaining cleanliness, and handling high volumes during peak hours

Marks and Spencer | (Sales Assistant June2023 - present 2024)

- Supported the sales team in ensuring a smooth customer experience, providing assistance with product knowledge and store navigation.
- Maintained inventory and organized store displays, contributing to a visually appealing shopping environment.
- Worked collaboratively with team members to meet daily sales goals and improve store efficiency.

Freelance Data Analyst

- Analyze financial data to uncover trends and insights, creating actionable reports and visualizations for clients.
- Build predictive models and dashboards to support decision-making, helping clients improve financial performance and business strategies.

### ***Freelance Portfolio Manager (Equity, commodity, derivatives, Mutual Funds, and government bonds)***

- Provide personalized portfolio management services, using data-driven insights to optimize asset allocation and mitigate risk for clients.
- Conduct in-depth market analysis to recommend tailored investment strategies, with regular performance reporting and strategic adjustments.

### **Technical Skills and Industry Knowledge**

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**Programming Languages:** Python, C, C++, SQL

**Data Analysis & Machine Learning:** Pandas, NumPy, SciPy, MATLAB, Time Series Analysis, Tensor Flow

**Financial Modeling & Quantitative Skills:** Monte Carlo Simulation in Excel, Stochastic Calculus, Bloomberg Terminal, Value at Risk, Portfolio optimization, Data Analysis

**Cybersecurity Tools & Concepts:** Wireshark, Metasploit, OWASP, Burp suite, **(Every Linux base Tools and OS)**

**Industry Knowledge:** Financial Statements, Acquisitions, Financial Consolidation, Business combination, binomial distribution, Fixed-Income Investing, Black-Scholes, American option pricing, Derivatives, SWAPS, Asset Management, Financial Markets, Modern Portfolio Theory, Private Equity, Venture Capital / Financing, Valuation, Financial Modelling, Investment Banking, Financial Analysis, Research Skills, Quantitative Analytics and research

### **Leadership / Extracurricular**

**UH Racing Autonomous (University of Hertfordshire's Formula Student Team)**

**Building High Frequency Trading, Automated Data Analyzing Bots / programs**