Ismaeel Bashir

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Skills Summary

Languages: Python, Java, SQL, C, C++, C#
Libraries & Technologies: Pandas, NumPy, Matplotlib, Scikit, Torch, TensorFlow, Eigen
Skills: Software development, Machine Learning, Data analytics, Data modelling, Systems engineering, Software engineering.
Interests/Hobbies: MMA, Poker

Education

MASTER OF INFORMATICS (MINF) | 2021-2026 | UNIVERSITY OF EDINBURGH

- Expected First Class Honors (85%).
- Notable Courses: Computational Logic, OOP, Linear Algebra, Calculus, Discrete Mathematics, Computer Systems, Data Science, Algorithms & Data Structures, Natural Language Processing, Software Testing, Compiling Techniques, Computer security, Computer Architecture, OS and Machine Learning Systems

Experience

Morgan Stanley | Software Engineer Intern | Java | Jun 2024 – Aug 2024

- Designed and created a new scalable data feed for a trading data pipeline that handles over **$900 Bn** worth of assets.
- Created batch processes to calculate how much of a client's assets could be used for trading when on margin, **increased number of assets traded daily by $400k.**
- Found a memory optimization in the system that led to a **10% increase** in startup of the entire trading system.

ICSA Edinburgh University | Research Assistant | C++ | Sept 2023 – Present

- Worked on building low latency, low level systems using C++ for researchers studying machine learning systems. Used GRPC to setup communication channels between servers and researched efficient tensor operations on edge devices.

EUTIC – Edinburgh University | Quantitative Analyst | Python | Sept 2022 – Jun 2024

- Created Algorithms and researched quantitive methods for the largest student led fund in the world.
- Entered algorithmic trading competitions and collaborated with companies to research indicators for commodities using NLP.

D E Shaw | Spring Insight Intern | May 2024 – May 2024

- Selected for D E Shaw's spring insight event, where I learned how they use technology as a hedge fund.

Citadel | Spring Insight Intern | May 2024 – May 2024

- Selected from **4000+ (1.7% of people)** to take part in Citadel's discovery programme.
- Took part in quantitive and algorithmic trading challenges while also being informed of what role technology has in trading.

Optiver | Spring Insight Intern | Apr 2024 – Apr 2024

- Selected to participate in Optiver's technology insight days and partook in algorithmic coding challenges.
- Learned about how market makers use efficient serialization to communicate between servers.

Barclays | Technology and Finance Summer experience | Aug 2023 – Aug 2023

Acquired knowledge of how financial technology (fintech) solutions are integrated within a global financial institution like Barclays.

Projects

Optiver Hackathon – First Place | Python | Quantitive Development |

- Built a high frequency pairs trading model for a hackathon sponsored by Optiver to make the most money trading ETF's and their stocks. Used various techniques to ensure our trades ran at more frequent tick rates than other competitors.
- Achieved **first place** by optimizing ETF and stock trading.

Marshall Wace Hackathon – First Place | Python, Java | Streamed Data Pipelining |

- Built a streamed data pipeline to allow hedge funds to send high frequency data to traders and investors.
- Received **first place** in the hackathon for having a system that was able to scale to millions of users and requests at once.
- Utilized tools like Kafka and Apache spark to transform stock data sent through the pipeline with visuals to monitor the system.

Orderbook Matching Engine | C++ | Low latency, Multi-Threading, Memory Management |

- Built a multithreaded Orderbook API that can add, remove, modify, or match market orders and FoK orders.
- Utilized heaps and time-based queues for fast order lookups and matches. Used memory pools to track lifetimes of orders.
- Managed to achieve matching speeds of **5 nanoseconds per order**.

Neural Network from Scratch | Python | Deep Learning |

- Built a Neural Network from the ground up using python standard libraries and NumPy only.
- Used various books on the mathematics behind the model to calculate the gradients, activation functions, and optimizations.
- Used object-oriented programming to make the program a library that can be imported for later projects.