Anss Hameed

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EDUCATION

University of Bristol | BSc Computer Science *Sept 2022 – Aug 2025*

- **Predicted:** 1st Class Degree
- **Key Modules:** Machine Learning (NN, MCMC, SVMs, Scikit, PyTorch), Functional + Imperative + Object-Oriented + Concurrent & Distributed Programming, Discrete Maths, Software Tools, Algorithms, Data Science, Cyber & Networks

St Brendan's Sixth Form College | A Levels *Sept 2019 – Aug 2021*

- Mathematics (A*), Computer Science (A*), Business (A*), EPQ (A)

EXPERIENCE

Bank of America | Software Engineering Intern (Electronic Cash Equity Trading - OMS) *June – Aug 2024*

- Solved client trading production issues in **OMS** by troubleshooting **FIX protocol** discrepancies, enhancing trading stability.
- Streamlined trade testing processes by automating **load testing** using **Python** and **Bash**, **reducing testing time by 94%** (from 24 hours to 90 minutes), now adopted globally by QA teams across the bank.
- Improved pre-trade and post-trade accuracy by developing new features in FIX testing software using **Java** and **AMPS** middle-ware, enabling more precise **QA-to-Production trade simulations**.

University of Bristol | Quantitative Analyst (Bristol Trading Society) *Oct 2024 – Present*

- Leveraging satellite data (Landsat, Sentinel-2) to track crop health and predict **commodity price movements**.
- Building a trading strategy linking **NDVI trends** and market data with backtesting via **QuantConnect** and execution via **IBKR**.

Alfa Financial Software | Technology Intern (Consultant + Developer) *July 2023*

- **Technology consultancy** - Tackled customer queries to optimise software usage for business needs.
- **Full-Stack Dev -** Enhanced **UI/UX** of Alfa's software (**HTML/CSS/JS**), used **Java** to build software for asset finance company.

Pyng (Start-Up) | Software Developer *Mar – Aug 2023*

- **Full-Stack Dev -** Optimised mobile payment transactions, improving transfer speed and UX using **Python** and **React Native.**

upReach | Tech 500 Associate *Mar 2023 – Present*

- Selected as a high potential undergraduate to join an accelerated professional development programme.
- **Tech500 Bootcamp Highlights: G-Research** - Developed Python solutions to optimise decision-making in auction bidding challenge**; JMAN**: Data Science role for a client project using **Power BI**, **Excel**, and **Python** (**NumPy**, **Pandas**).

University of Bristol | STEM Outreach Ambassador & Teaching Assistant *Mar 2023 – Present*

- Delivered Python and GCSE Maths lessons to **30+ disadvantaged students** at a local secondary school.
- Taught **2 Discrete Maths** modules (**Linear Algebra, Probability & Statistics, Combinatorics, Analysis**) and **mentored 12 students** (1st and 2nd year undergraduates) for **ML/AI** projects (**client – IBM)**

PROJECTS

Deep Learning Trading Agents Leveraging Technical Indicators in Distributed HFT Arbitrage Simulation | *C++, Python* *Jan 2025 – Present*

- Developing **Python**-based **deep learning trader** trained on **LOB** snapshots and baseline trading strategies, leveraging **technical indicators** (e.g. **RSI**) to compete with **superhuman trading agents** (e.g. ZIP, SHVR).
- Evaluating the deep learning trader using **XGBoost** in a **distributed HFT inter-market arbitrage simulation** in **C++**.

Cointegration-Driven Pairs Trading with Technical Indicators | *Python, Pandas, NumPy* *Jan 2025*

- Used statistical **cointegration** tests (**ADF**) to identify stock pairs with stationary spreads, ensuring **mean-reversion** potential.
- Built a backtesting engine using **Bollinger Bands**, **RSI** and **Z-Score** as entry/exit signals with **dynamic risk controls** through stop-loss and take-profit levels.
- Achieved a **Sharpe Ratio of 1.06** and **Total Return of 115%** over 4 years, demonstrating robust and risk-adjusted profitability.

Stochastic Options Pricing Engine (Monte Carlo & Black-Scholes) | *Python* *Nov 2024*

- Simulated asset price paths using **Geometric Brownian Motion** across **50+ scenarios**, applying **neural networks** for volatility prediction to **improve pricing accuracy by 10%** with **Black-Scholes** as benchmark.
- Built a real-time interactive UI for parameter adjustments and visual error analysis, optimising **Monte Carlo** performance through **hyperparameter tuning** with **average errors of <5%** between MC and B-S outputs.

AI Social Media | Product Manager, Client Liaison & Developer (SpaceNXT Labs) | *Python, JavaScript* *Sept 2023 – May 2024*

- Utilised **Stable Diffusion** (AI image generation), **OpenAI API** (dynamic caption generation) and **Google API** (trend analysis).
- Developed **Vue.js** front-end with back-end API integration for Twitter (X) and LinkedIn automated posting.
- Orchestrated agile development as product manager for a team of 5 and liaised with SpaceNXT Labs CEO.

Parallelised Game of Life Simulation (AWS Distributed) | *Go, AWS* *Oct – Dec 2023*

- Optimised a distributed Game of Life simulation using **goroutines**, achieving **16x speedup** across **AWS EC2** nodes with **dynamic load balancing** and **CPU profiling** to identify hardware bottlenecks. Ensured reliable communication via **TCP** and **RPC**.
- Enhanced efficiency by **optimising cell update time complexity** and **reducing computation time by 25%** with algorithmic improvements, ensuring scalability and **fault tolerance** via a **publish/subscribe model**.

SKILLS, ACHIEVEMENTS & OTHER EXPERIENCE

Programming Languages & Frameworks: Python, Java, C++, C, Go, Haskell, React, TypeScript
Technical Skills & Frameworks: Scikit-learn, PyTorch, QuantConnect, Git, Data Structures & Algorithms, AWS, Pandas, NumPy, Architecture, SQL, Linux, Imperative + Functional + Concurrent + Distributed + Object-Oriented programming
Spoken Languages: English, Hindi, Urdu
Other Experience – WeBuyAnyCar Sales Manager (Full-Time): Consistent **#1 performer** across South-West, Wales and Midlands, leading in car purchases and bonuses. **Lead 6 branches** across Bristol and **trained new recruits**. *Jan - Sept 2022*
Achievements:

- **Bloomberg Market Concepts:** Gained foundational knowledge in financial markets (Economics, Equities, Fixed Income etc.)
- **QuantConnect Bootcamps:** Implemented various algorithmic trading strategies for Equities, Forex and Futures with backtesting.
- **Bristol Plus Award**: Top 5% of University of Bristol students for outstanding work experience and extracurricular activities.
- **'Bristol Scholar' & 'Access to Bristol':** Selected by sixth-form as a high-performer in academia for exclusive opportunities.