

# Anss Hameed

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## EDUCATION

### University of Bristol | BSc Computer Science

Sept 2022 – Aug 2025

- **Predicted:** 1<sup>st</sup> 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** (1<sup>st</sup> and 2<sup>nd</sup> year undergraduates) for **ML/AI** projects (**client – IBM**)

## PROJECTS

### Optimisation of HFT Simulations in Distributed Inter-Market Arbitrage (Dissertation) | C++

Jan 2025 – Present

- Extending DSXE to optimise decision-making with advanced **technical indicators** for improved trading strategy evaluation.
- Enhancing **SHVR** and **ZIP trading agents** for more intelligent and adaptive **trading behaviour**.

### 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.