ROHIN NAYAR

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Aerospace Engineer | Quantitative Trading | Machine Learning

MEng Aeronautical Engineering graduate from Imperial College London working at the intersection of quantitative modelling and high-performance systems engineering. Experienced in low-latency trading infrastructure, robotics software, and distributed real-time architectures. Combine analytical depth with practical implementation, moving from research concepts to production-grade systems. Comfortable operating in performance-critical environments where precision and reliability matter. Driven by building robust, data-informed systems for complex, dynamic problems.

CORE COMPETENCIES

- Python (pandas, NumPy, asyncio, scikit-learn)
- C++ (OOP, HPC), MATLAB
- SQL (MySQL, Cloud), Microsoft Azure, AWS
- Linux, Bash Scripting, Git version control
- AWS, Microsoft Azure, GCP
- ETL pipeline (batch & streaming architectures)
- Apache Kafka, event-driven architectures
- Low-latency execution pipelines
- Statistical inference, Bayesian methods
- Time-series modelling, model validation

PROFESSIONAL EXPERIENCE

Zanista AI, Quantitative Trading Analyst **Aug 2025 – Dec 2025**

- Refactored and optimised a systematic multi-asset trading framework, redesigned **Python** execution and websocket ingestion architecture to reduce latency bottlenecks; achieved **sub-50 ms** order routing performance
- Architected automated cross-asset macro research pipeline (beta estimation, covariance modelling, event tagging), reducing manual analysis time by **35%** and enabling faster signal deployment
- Converted Generative AI news flow into structured macro factor signals for quantifiable trading inputs
- Performed slippage decomposition and order flow diagnostics via **SQL** querying of relational financial datasets, identified execution inefficiencies and improved trade quality to streamlined and improve client service

Imperial College London Department of Aeronautics, Teaching Assistant **Sep 2024 – Jun 2025**

- Delivered tutorials in Probability, Stochastic Calculus and Differential Equations, increased conceptual comprehension through structured problem decomposition and applied **MATLAB** solution modelling

Airbus Defence & Space, Robotics Software Engineer **Aug 2023 – Aug 2024**

- Automated **Linux** software package installation using Bash scripting to expedite setup procedure for **500** users
- Deployed a real-time distributed data streaming architecture using **Kafka, Python (pandas, asyncio**), and event-queue system to process **100 GB+** time series data using **Git, Jira & Confluence** for scrum project development
- Reduced **R&D** expenditure by **15%** through redesign of carbon welding process; optimised procedure efficiency

Imperial Plasma Propulsion Laboratory, Machine Learning Researcher **Jun 2023 – Jul 2023**

- Awarded **£2,500** competitive research grant to investigate data-driven discovery of governing chaotic equations
- Constructed interpretable reduced-order models using **scikit-learn** to approximate nonlinear plasma dynamics
- Stress-tested model generalisation under regime shifts, identified stability constraints, presented research findings

EDUCATION

Imperial College London **Oct 2020 – Jun 2025**

- MEng Aeronautical Engineering with a Year in Industry – Awarded Upper Second Class Honours
- **2nd** in cohort of **170** for Third Year Applications Prize, Second Best Aerospace Vehicle Design Performance
- Master's Thesis: Hypernetworks in Deep Reinforcement Learning for Adaptive Complex Systems Control **(74%)**
- Selected Modules: Accounting, High Performance Computing, Optimisation, Mathematics, Numerical Methods

PROJECTS

Imperial College Algorithmic Trading Society, Head of Quantitative Trading **Oct 2024 – Jun 2025**

- Directed a **20-member** team, leading weekly sessions on market strategy, structure, and key news drivers
- Engineered **20+** features for electricity forecasting model; achieved **17%** RMSE reduction on out-of-sample data using time-series cross-validation; enabled **88%** predictive accuracy of short-term imbalance spikes price forecast
- Ranked in top **2%** across institutional trading simulations hosted by Glencore, EDF & CME

Radon Tuition **Jan 2020 – Present**

- Mentored **100+** students across mathematics and quantitative disciplines consistently over **6+ years**
- Developed a generative AI-driven feedback system to analyse student work and performance metrics; achieved **97%** satisfaction and **99%** grade improvement rates; invited to deliver workshops at sixth form colleges

High Performance Computing MD-Sim **Feb 2025 – Jun 2025**

- Developed a molecular dynamics simulation in **C++**, implemented parallel computation using **OpenMP** (shared memory), **MPI** (distributed memory), achieved **18x** speedup with focus on scalability and **OOP** design
- Offloaded computationally intensive kernels using **CUDA**, achieved a **91.2%** reduction in GPU runtime.

Interests: Endurance athlete, training for Ironman 70.3 | BUCS Imperial Athletics and competitive Rugby | RAF Air Training Corps Sergeant, leading junior cadets in aviation training | Drone photography content creation