Angelo Rosu

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PROFILE

MSc Computational Finance student specialising in quantitative modeling and ML, with proven skills in Python, data analysis, and risk management.

EDUCATION

UNIVERSITY COLLEGE LONDON
MSc Computational Finance
2024 - Present | London, UK
Modules: Algorithmic Trading, Market Microstructure, Financial Engineering, Stochastic Processes, Numerical Methods for Finance, Data Science & Machine Learning, Derivative Pricing, Probability.

UNIVERSITY OF NOTTINGHAM
BSc Mathematical Physics
2020 - 2023 | Nottingham, UK
Modules: Complex Analysis, Differential Equations, Stochastic Processes, Statistical Physics, Vector Calculus, Advanced Quantum Theory, Numerical Methods.

SKILLS

PROGRAMMING
Proficient:
Python, SQL, C++, Excel, LaTeX, Jupyter Notebooks
Familiar:
MATLAB, R, C#, TensorFlow

QUANTITATIVE TECHNIQUES
Monte Carlo Simulations
Time Series Analysis (ARIMA, GARCH)
Derivative Pricing (Black-Scholes, Heston, CIR, Variance Gamma)
Stochastic Calculus & SDEs
Optimisation Algorithms

DATA SCIENCE & ML
Pandas, NumPy, Scikit-Learn
Deep Reinforcement Learning (A2C, PPO)
Financial Forecasting
Neural Networks (TensorFlow, PyTorch)

HACKATHONS
HackNotts 24: Financial Data Modelling App
HackNotts 23: AI-Healthcare Dashboard
Awarded 2nd place by Intel

KEY QUANTITATIVE PROJECTS

HIGH-PERFORMANCE LIMIT ORDER ENGINE | Project
- Developed a high-performance limit order matching engine simulating key market microstructure features using heap-based data structures.
- Achieved the processing of 10,000 orders in 0.0312 seconds (throughput: 320,132 orders/sec) with an average latency of 0.0019 ms per order.
- Implemented a real-time interactive GUI with Tkinter and Matplotlib to visualise order flow, trades, and real-time analytics.

NEURAL NETWORK FROM SCRATCH | Deep Learning Research
- Implemented a fully connected neural network from scratch using only NumPy, without external ML libraries.
- Designed and optimized custom backpropagation and gradient descent algorithms for model training.
- Developed a hyperparameter tuning framework to optimize the number of layers, learning rate, and activation functions.
- Evaluated model performance using loss function analysis, training convergence plots, and prediction accuracy metrics.

FINANCIAL DERIVATIVES PRICING PLATFORM | Project
- Built and deployed a full-stack app using Streamlit for option pricing and risk analytics.
- Simulated price paths using GBM, Heston, CIR, and Variance Gamma models for asset dynamics with visualisations.
- Implemented Black-Scholes and Monte Carlo methods to price European options with interactive pricing visuals.

EXPERIENCE

QUANTITATIVE RESEARCH | Market Making using RL
Independent Research | 2024 – Present
- Developed a Reinforcement Learning-based market-making algorithm using Actor-Critic (A2C) for optimal order execution.
- Implemented Hawkes Process modeling for order flow simulation, capturing high-frequency trading patterns.
- Built a synthetic Limit Order Book (LOB) and integrated the Avellaneda-Stoikov model for dynamic bid-ask adjustments.
- Conducted backtests using Monte Carlo simulations, analyzing execution performance and profitability.

JP MORGAN CHASE | Data For Good Hackathon | Oct 2024
- Cleaned and pre-processed highly noisy and incomplete datasets using Python.
- Applied feature engineering techniques to improve model performance for organisational welfare in Ghana.
- Using Python for advanced data visualisations that illustrate actionable insights for stakeholders.

VALPAK | Data Analyst
Jan 2024 - Aug 2024 | Stratford, UK
- Analyzed and optimised large-scale financial datasets ($50B+ annual revenue) using Python and Excel.
- Developed predictive models to improve business decision-making and resource allocation.
- Automated data pipelines, reducing manual processing time by 30%.