Pheneas Newman

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Profile

MSc graduate in Quantitative Methods for Risk Management (LSE, Distinction) with a First-Class BSc in Mathematics with Actuarial Science (QMUL). Skilled in Python, C++, and R for quantitative finance, stochastic modelling, derivatives pricing, and machine learning. Author of an open-source finance library on PyPI. Self-taught in C++ with a strong interest in numerical methods, optimisation, and simulations. A fast learner with a passion for applying quantitative methods to financial problems and developing practical, data-driven solutions.

Education

London School of Economics Sept 2024 – July 2025

MSc Quantitative Methods for Risk Management — *Distinction*

- Studied stochastic processes, reinforcement learning, stochastic simulations, and risk analysis.
- Applied stochastic calculus and matrix factor models to financial data, strengthening expertise in quantitative research.
- **Optiver Trading Course:** Designed and tested a systematic trading algorithm in Python.
- **LSE–Allianz Statistics Challenge:** Applied advanced statistics to model insurance claims, developing teamwork and applied research skills.

Queen Mary University of London Sept 2019 – July 2024

BSc Mathematics with Actuarial Science — *First Class Honours*

- Developed strong foundations in financial mathematics, financial engineering, time-series analysis, and machine learning.
- Achieved top marks in quantitative modules: Time Series (94%), Machine Learning (89%), Financial Mathematics (91%), Actuarial Financial Engineering (87%).
- Achieved exemptions from six IFoA professional actuarial exams (CM1, CM2, CS1, CS2, CB1, CB2).

Technical Skills

- **Programming:** Python (NumPy, Pandas, PyTorch, TensorFlow, PyMC), C++ (numerical methods, optimisation, simulations), R (rugarch, copula, ggplot2).
- **Finance:** Derivatives pricing, Greeks, stochastic modelling, volatility forecasting, GARCH-family models, Value-at-Risk and Expected Shortfall.
- **Tools:** Git/GitHub (PyPI publishing), LaTeX, Excel (Certified Specialist).

Projects & Research

quantitativelib (Open-Source Library)

- Published Python finance library on PyPI/GitHub; implements Black–Scholes pricing, Greeks, and stochastic models (GBM, CIR, Heston, OU, Merton jumps).
- Includes SDE solvers, GARCH-based VaR backtesting, and automated plotting utilities.
- Independent project demonstrating initiative and ability to design and package quantitative finance tools in Python.

Volatility Forecasting Models

- Built and validated GARCH-family and EWMA models in R; evaluated forecasts with Value-at-Risk exceedances.
- Automated rolling forecasts and visualised results in ggplot2.
- Strengthened expertise in **time-series modelling, predictive analytics, and financial risk management**.

Reinforcement Learning for Vessel Collision Avoidance (91%)

- Designed a custom Gym-style environment in Python for multi-agent navigation.
- Implemented DDPG and TD3 agents in PyTorch; tuned with Optuna and built reproducible pipelines.
- Showcased skills in **reinforcement learning, scalable simulations, and real-time optimisation methods**.

Interests

Game development and application design in C++ (Raylib & Qt), fitness and gym, financial markets.