

PATRICK FITZSIMONS

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EDUCATION

King's College London 2026 - 2027
MSc Computational Finance *(Incoming)*

Birkbeck, University of London 2023 - 2026
BSc (Hons) Data Science & Computing 1st Class (83%)

Certifications: • Machine Learning with Python [IBM] • Generative AI & LLMs: Architecture & Data Preparation [IBM] • Databases & SQL for Data Science [IBM] • Introduction to Trading, Machine Learning & GCP

EXPERIENCE

Software Engineer December 2025 – Present
Vinverum *London*

- Developed a full-stack client portfolio platform serving 100+ clients, built backend APIs, PostgreSQL database models and internal tools such as web hooks providing automated data parsing and an Electron desktop app for client analysis.
- Built ETL pipelines to migrate legacy WordPress user, portfolio, and content data into PostgreSQL (100+ accounts, 1,000+ holdings, 150 posts), enabling cost-basis portfolio views, regional exposure breakdowns, and admin aggregates across all client accounts.
- Integrated the Liv-ex API to sync alternative investment indices via scheduled cron jobs, serving benchmark data and performance visualisations for authenticated clients.

Backend Developer Intern November 2025 – February 2026
OoNt *Hybrid, London*

- Developed and maintained scalable backend API endpoints supporting vendor, order, and payment workflows, including order capture, cancellation, and refund logic with Stripe integration.
- Collaborated with frontend and product teams in Agile sprints, focusing on reliability, performance, and clean architecture.

Software Developer Intern May 2025 – June 2025
Legal Pythia *Hybrid, London*

- Designed and developed ETL pipelines in Python to extract data from diverse sources, process and clean it, and store the results in Google cloud storage buckets. Tested locally with MinIO and containerised with Docker.
- Deployed to Google Cloud Functions for cost efficient, serverless execution. Implemented CI/CD Workflows with GitHub actions to automate builds, testing, and deployment updates.

PROJECTS

- **Quantitative Stock Prediction: Technical vs. Sentiment-Based Models** *Final Year Project*
Built and evaluated 12 XGBoost models across Gold, S&P 500, Apple and Google combining technical indicators (RSI, MACD, Bollinger Bands) with FinBERT/VADER sentiment, using leak-free walk-forward validation; best model improved Sharpe ratio to 2.35 vs. 2.10 for passive buy-and-hold.
- **Aerial Object Detection System** *In Progress*
Building a radar simulation and object detection framework using C++ and Python, modeling kinematics and signal behaviour, applying statistical feature engineering and supervised learning techniques for probabilistic target classification.
- **Bank Transaction Ingestion API.** Developed a FastAPI ingestion API for multi-GB CSV bank transactions with constant memory streaming, chunked processing and row level validation. Implemented transactional batch inserts with rollback on failure handling, error logging and SQLite with indexed queries and expiry cleanup.

TECHNICAL SKILLS

Languages: Python, JavaScript, C++, SQL, R

Frameworks. Runtime: FastAPI, Express, React, Node.js

ML / Data: PyTorch, scikit-learn, Pandas, NumPy, SciPy, Matplotlib

Cloud & DevOps: Docker, GCP (Cloud Functions, Cloud Storage), Firebase, Heroku, CI/CD

Tools: Git, GitHub, PostgreSQL, Postman, MinIO, MongoDB, Backblaze