

Abhishek Tiwari

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SUMMARY

Independent Researcher in Quantitative Finance and Artificial Intelligence with expertise in market microstructure, high-frequency trading, stochastic control, and machine learning. Experienced in developing Hawkes process models, optimal execution frameworks, and simulation-based optimization engines for complex financial and aerospace systems. Strong background in reinforcement learning, Bayesian methods, and interpretable AI, with multiple working papers and preprints under review. Seeking research or applied AI/quant positions to advance robust, explainable, and high-performance computational solutions in finance and optimization.

WORK EXPERIENCE

Business Intelligence Analyst, Allpay Ltd, Hereford, UK

February 2024 – Present

- Developed ML-driven pipelines and optimization projects for fintech/payments, generating data-driven insights.
- Designed and maintained interactive dashboards and visualizations to support operational and strategic functions.
- Applied advanced analytics and predictive modeling to improve product performance and operational efficiency.

Research Assistant, University of Liverpool, UK

Oct 2023 – Sep 2024

- Conducted AI and computational modeling research in stochastic processes, reinforcement learning, and graph-based methods.
- Implemented Python-based simulations and ML models for quantitative analyses and system optimization.
- Contributed to manuscript preparation, preprints, and academic publications in AI and interpretable modeling.

PROJECTS

Multi-Regime Climate-Financial Risk Transmission Engine

[GitHub Link](#)

Developed an econometric engine modeling climate-financial risk transmission using Hamilton's Markov regime-switching model with climate extensions. Includes 9+ years of empirical data, interactive dashboards, and reproducible code for real-time stress testing and risk analysis.

Quantum-Inspired Portfolio Optimization Platform

[GitHub Link](#)

Built a research-grade framework applying quantum algorithms (QAOA, VQE, Quantum Annealing) to portfolio optimization. Benchmarked against classical models (Markowitz, Black-Litterman, HRP) with extensions to multi-objective, cardinality, and transaction cost optimization. Includes scalability and noise-resilience studies.

Cross-Venue Hawkes Process Model

[GitHub Link](#)

Designed a multivariate Hawkes process model with cross-venue graph structure for high-frequency order flow prediction. Implements real-time particle filter calibration and GNN-based excitation modeling, with profitability demonstrations on multi-exchange tick and order book data. (*Work in Progress*)

EDUCATION

PUBLICATIONS

- ## SKILLS

Last updated: September 30, 2025