Peiyan Zou

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SKILLS

- **Technical**: Python, SQL, MATLAB, Rust (basic), Java, Google Cloud, BigQuery, Terraform, CI/CD, PostgreSQL
- **Quantitative**: Multi-agent systems, market microstructure, agent-based modelling, time-series modelling
- **Spoken**: Chinese (native), English (fluent), Italian (actively learning)

EDUCATION

King's College London, *MSc in Computational Finance* *Sep 2025 – Aug 2026*

- *Core Modules:* Quantitative Methods in Finance, High-Frequency Finance, Statistics in Finance.

The University of Nottingham, *BSc in Computer Science 2:1 Honours* *Sep 2022 – Aug 2025*

- *Core Modules:* Machine Learning, Mathematics for CS, Linear Discrete Optimisation, AI Methods.

Haileybury College Hertford, *A-Levels and IGCSEs* *Sep 2018 – Jul 2022*

- *A-levels:* Math (A*), Physics (A), Computer Science (A) and Chinese (A*)

WORK EXPERIENCE

Blockchain.com, *Data Engineer* (London, UK) *Jul 2025 – Dec 2025*

- Designed and hardened **ETL pipelines** ingesting data from PostgreSQL and APIs into **Google Cloud Platform** (GCS, BigQuery), implementing a Medallion architecture to improve reliability, latency, and cost efficiency.
- Built near-real-time CDC workflows on Google **Datastream** and provisioned database pipeline infrastructure and **CI pipelines** in **Terraform**.

Capgemini, *Summer Data Analyst* (Shenzhen, CHN) *Jul 2024 – Sep 2024*

- Built a complete credit scoring system in **Python**, resulting in an 81% classification accuracy in credit evaluation. [Link]
- Developed an end-to-end payment prototype in **SQL** and **Java**, covering data capture through back-end processing.

Shenzhen Sanrise Technology Co., Ltd., *Data Software DevOps* (Shenzhen, CHN) *Jul 2023 – Aug 2023*

- Developed and optimised office database resulting in improved data management and streamlined information exchange.
- Leveraged **SQL** and **Linux** shell scripts to establish dashboards and functions, empowering data analysis and auditing.

TECHNICAL PROJECTS

CLMM-Bench: Out-of-Sample Audit for Uniswap v3 Liquidity-Provision Strategies *Apr 2026 – Aug 2026*

MSc Thesis ***(Python, Dune, SQL, Parquet)***

- Built a reproducible backtesting framework over five Uniswap v3 pools; walk-forward-selected configurations from a 40-point grid lost 6.08% and 2.93% per three-month window in ETH/USDC, none beating a never-rebalanced position.
- Showed overfitting diagnostics are not cost-invariant: raising the reset charge from 0 to 0.25% of capital moved probability of backtest overfitting (PBO) from 0.454 to 0.114 while Deflated Sharpe ratio (DSR) collapsed from 0.557 to below 0.001.

Agent-Based Prediction Market Simulation in Crypto Market (*Python, Mesa, Solara)* *Jan 2026 – Jul 2026*

- Built a discrete-time agent-based model of the BTC spot market with heterogeneous traders responding to belief signals from Polymarket; owned the system infrastructure within a team of 4. [Link]
- Found that stronger herding amplifies signal transmission: as herding increases, participation rises and order imbalance shifts to extremes, driving price dynamics from fluctuating into persistent one-sided regimes.

Multi-Agent Reinforcement Learning in Trading Optimisation *Oct 2024 – Apr 2025*

BSc Published Research ***(Python, AgentPy, Gymnasium, Stable-Baselines3)***

- "StockMARL: A Novel Multi-Agent Reinforcement Learning System to Dynamically Improve Trading Strategies" [Link]
- Built a MARL trading system with a DQN agent, achieved 12.23% yearly money weighted return and 15.9% cumulative return across S&P-500 stocks while maintaining low trade volatility and a leading profitability score.

Deep Learning for Financial Time-Series Forecasting *(Python, MATLAB)* *Mar 2024 – Oct 2024*

- Built and evaluated LSTM models forecasting daily returns for US equities; as primary programmer in a team of 3, owned the pipeline end to end from data cleaning and feature construction through walk-forward evaluation.