

ALAN MATTHEW

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EDUCATION

Yale–NUS College

Aug 2020 – May 2025

Bachelor of Science (Honours) in Math, Computational and Statistical Sciences | GPA: 4.87/5.00

Coursework: Asset Pricing, Statistical Inference, Stochastic Modelling, Machine Learning

Activities: Teaching Assistant for Data Structures & Algorithms, Probability Theory, Statistical Inference

Awards: Kewalram Chanrai Full Scholarship

EXPERIENCE

DRW

HFT Proprietary Trading

Quantitative Trading Analyst

Jan 2026

- Options trading

Caladan

HFT Market Making

Software Engineer

Jul 2025 – Oct 2025

- Developed and maintained ETL pipelines, automating post-trade and transaction cost analysis (TCA) across high-frequency trading algorithms, delivering insights on hedge timing, execution quality, and price markouts.
- Designed and implemented robust NAV-based PnL attribution frameworks, producing granular breakdowns of performance by hedge leg, execution venue, etc., for comprehensive session-level trading reviews.

Caladan

HFT Market Making

Software Engineering Intern

May 2024 - Aug 2024

- Engineered low-latency trading execution servers and market quote polling services for new exchanges.
- Monitored trading algorithms and adjusted trading execution parameters depending on market conditions.
- Monitored and resolved production issues in core trading algorithms, ensuring correct trading behavior.
- Expanded Python analysis libraries for deeper insights into market volume, PnL, and trading statistics.
- Built ETL visibility tools and debugged out of memory issues in Python, reducing AWS costs by 80%.

OPEN SOURCE

panglesd/diffcensible

Accessible Diff Viewer

- Designed and implemented optimized data structures (e.g., Zipper, blocks) and algorithms for word-level diff views in **OCaml**, improving file comparison granularity and navigation.
- Programmed side-by-side view and integrated pager functionality for navigation of large diff outputs.

PROJECTS

- **yokurang/poe2-arbitrage:** Engineered a scalable ETL and ML pipeline to scrape item prices/attributes and estimate FX rates via VWAP. Built both regularized regression and closed-form pricing models, selecting the best per item, and applied residual diagnostics in an iterative feedback loop to refine accuracy. Implemented a live client to continuously scan and detect undervalued items across multiple quote currencies in real time to users.

SKILLS

Languages: Python, Rust, C++, OCaml, C#, TypeScript, JavaScript, SQL, Kotlin, Scala, Golang, Coq

Frameworks: React, Next.js, Flask, PyTorch, TensorFlow, scikit-learn, AWS (Lambda, DynamoDB)