ALAN MATTHEW

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EDUCATION

Yale-NUS College — Singapore
Bachelor of Science (Honours) in Mathematics and Computer Science; GPA: 4.87/5.00 — May 2025

Relevant Coursework: Asset Pricing, Statistical Inference, Stochastic Modelling, Machine Learning
Activities: Teaching Assistant for Data Structures & Algorithms, Probability Theory, and Statistical Inference
Awards: Kewalram Chanrai Full Scholarship

EXPERIENCE

Caladan — HFT Market Making
Algorithm Developer — Jul 2025 – Present

- 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., enabling comprehensive session-level reviews of trading activity.
- Built custom PnL monitoring and reporting pipelines for OTC trading to surface risks of strategy arbitrage, hedge inefficiency, and counterparty exposure, providing actionable insights to strengthen risk management.

Caladan — HFT Market Making
Algorithm Developer 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%.

Singular Asset Management — Asset Management
Equity Trading Intern — Jan 2022 - Apr 2022

- Traded Indonesian equities on IDX, supporting a long-only portfolio with PM; generated 11% returns.

Kredens Capital Management — Hedge Fund
Equity Trading Intern — May 2022 – Aug 2022

- Researched US equities and macro trends to pitch short-term trades; generated 17% portfolio returns.

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.
- **yokurang/strategy-behaviour-analysis**: Investigated trade direction predictability using classification models. Engineered features and systematically trained and applied different models to understand trading behavior.
- **yokurang/strategy-markout-analysis**: Performed post-trade analysis on crypto data by identifying key one-hour windows, computing markouts, and visualizing strategy behaviour, trade profiles, and drawdowns.
- **yokurang/mytree**: A published Rust tool for displaying directory trees with custom filters. 2k+ downloads.

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)