

# ALAN MATTHEW

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## EDUCATION

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### 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

### UWC Li Po Chun

Aug 2018 – May 2020

International Baccalaureate Diploma (40/45)

**Coursework:** HL: Math, Physics, Chemistry (7/7/7)

**Activities:** Working with Domestic Helper Club (US\$5,000 & 250 books for Wonosobo library); United World Schools (US\$16,500 for schools in Yern Jas); Dragon Dance

**Awards:** UWC Scholarship

## EXPERIENCE

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### DRW

HFT Proprietary Trading

Incoming Quantitative Trading Analyst

Jan 2026

- I will be trading stock options on the Hong Kong Stock Exchange, and researching and implementing high-frequency and mid-frequency trading strategies.

### Caladan (AlphaLab Capital)

HFT Market Making

Software Engineer

Jul 2025 – Oct 2025

- Designed and built a generalized caching layer in Python to manage storage and fast retrieval of large-scale time-series data across S3, SQL, etc., reducing query latency and improving pipeline throughput by 97%.
- Reimplemented ETL job services with fault-tolerance and async design (Python event loops, DAG modeling), improving recovery, consistency across dependent tasks, overall maintainability, and clarity of error reporting.
- Built a fault-tolerant 24/7 ETL service for real-time PnL computation, enforcing invariants for correctness and exposing statistics for business analysis, with infrastructure libraries supporting QuestDB and Grafana logs.
- 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 (AlphaLab Capital)

HFT Market Making

Software Engineering Intern

May 2024 - Aug 2024

- Implemented cold and hot path components for C# trade servers, expanding crypto trading to new exchanges.
- Developed data ETL pipeline visibility service in Python; Rewrote core services using async to improve speed.
- Resolved critical bugs in algorithm trading logic and fixed out of memory issues, saving monthly costs by 80%.
- Expanded Python analysis libraries for deeper insights into market volume, PnL, and trading statistics.

### Evooq

Fintech SaaS

Software Engineering Intern

Jan 2024 - Apr 2024

- Created a Python LLM chatbot that translated natural language queries into SQL for a MariaDB database.
- Created a Python tool to generate trading ideas for a given portfolio with specific goals using RAG.

### Hatcher+

Fintech SaaS

Software Engineering Intern

May 2023 - Aug 2023

- Developed a Python LLM microservice to parse excel company capitalization documents into structured JSONs.
- Programmed a PHP scheduler leveraging an LLM to predict English sentences and translate foreign languages.

## Switchco Labs

Software Engineering Intern

Cryptocurrency Exchange

Oct 2022 - Dec 2022

- Leveraged Golang to automatically link markets and liquidity pools, eliminating manual work and securely allocating USD \$130+ million of capital across the exchange.
- Implemented a microservice in TypeScript to monitor and collect data on CDP transactions and visualize trading activities using React, serving 35,000 daily visitors.
- Created a Golang API to aggregate and consolidate data from multiple databases into a single, unified API call, simplifying the information search process for 96,000+ users.

## Investree

Software Engineering Intern

P2P Fintech Lending

Feb 2022 - Aug 2022

- Implemented new features using Vue.js and Kotlin to improve the presentation of financial statements and key metrics, boosting user reviews by 17%.
- Designed and developed a covenant page from scratch using Vue.js and Kotlin, simplifying the contractual agreement process for over 59,000 business loans.
- Developed and deployed RESTful APIs in Kotlin for data querying, processing, and validation from Postgres databases, serving the frontend needs of over 100,000 users.

## Singular Asset Management

Equity Trading Intern

Asset Management

Sep 2021 - Jan 2022

- Traded Indonesian equities on IDX, supporting a long-only portfolio with PM; generated 11% returns.
- Performed in-depth company analysis, industry research, competitor analysis, ESG analysis, and on-the-ground research to identify key trends across diverse sectors in Indonesia.
- Liaised with sell-side analysts and industry experts during broker calls and investor conferences to refine market perspectives and uncover new trading opportunities.

## Kredens Capital Management

Equity Trading Intern

Hedge Fund

May 2021 - Aug 2021

- Researched US equities and macro trends to pitch short-term trades; generated 17% portfolio returns.
- Conducted detailed financial valuations and analyses of public companies in tech, aerospace, pharmaceutical, ride-hailing, defense, and gaming for potential trading opportunities.

## LEADERSHIP

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### Perception Gap

Founder

International Network

Jul 2022 - Jul 2023

- Started and manage an international equity research club that grew from 4 friends to a global network of 17 members at institutions like Cornell, LSE, UPenn, Wellesley, HKU, and HKUST.
- Taught accounting and financial modelling to members, leading them to write comprehensive equity research reports on Tesla, Boeing, Lockheed Martin, Grab, and more.
- Organized mock interviews and quiz nights so members can network, sharpen business knowledge, and share market happenings—helping third-year members land investment banking and private equity internships.

## OPEN SOURCE

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### panglesd/diffcensible

Accessible Diff Viewer (OCaml)

- Developed side-by-side diff rendering with numbered lines, color highlighting, etc., to enhance user experience.
- Implemented data structures (e.g., zipper, block-based storage) and linear-space diff algorithms to enable precise word-level comparisons across multi-line changes and improve performance in large-scale file navigation.

## PROJECTS

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- **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/mytree**: A published Rust tool for displaying directory trees with custom filters. 2k+ downloads.
- **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/passphrase-generator**: A **Rust** app to generate secure passphrases using Markov chains.
- **yokurang/ocaml-chat**: An OCaml one-to-one chat app using TCP for real-time messaging and RTT.

## SKILLS

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**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)