ALAN MATTHEW

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EDUCATION

Yale-NUS College Singapore

Bachelor of Science in Math and Computer Science; Minor in Economics; GPA: 4.89/5.00 May 2025

Relevant Coursework: Parallel Programming, Machine Learning, Stochastic Processes, Econometrics
Activities: Teaching Assistant for Data Structures & Algorithms, Probability, and Database Systems
Awards: Kewalram Chanrai Full Scholarship

EXPERIENCE

Caladan (AlphaLab Capital) High Frequency Market Making in Singapore

Algorithm Developer Intern May 2024 - Aug 2024

- Implemented cold and hot path components for a **C#** trade server for Upbit Korean exchange.
- Developed ETL pipeline visibility in **Python**; migrated core services from AWS to on-prem resources.
- Enhanced **C#** trading algorithm logic and resolved critical bugs, ensuring accurate trading behavior.
- Expanded **Python** analysis libraries for deeper insights into market volume, pnl, and trading statistics.
- Debugged out of memory issues and optimized **Python** resource usage, saving AWS costs by 80%.

Evooq Swiss Wealth and Asset Management SaaS

Software Engineering Intern Jan 2024 - Apr 2024

- Used **Python** to build a LLM chatbot which can query a **MariaDB** database using natural language.
- Created a **Python** tool to generate trading ideas for a given portfolio with specific goals using RAG.

Hatcher+ Singaporean Venture Capital SaaS

Software Engineering Intern May 2023 - Aug 2023

- Built a **Python** LLM service to parse excel company capitalization documents into structured JSONs.
- Authored a smart contract in **Golang** to store investment data on the AWS Hyperledger Fabric network.
- Programmed a **PHP** scheduler to predict English sentences using an LLM and apply language updates.
- Designed and developed a comprehensive employee leave system using **Vue.js**, **Laravel**, and **MySQL**.
- **Data Parsing Microservice**: Engineered a **Python** microservice from scratch to parse excel company capitalization documents into structured JSONs using a large language model, saving data entry time.
- Created a **Python** Slack Bot to monitor the health and uptime of web scraping bots and update the Slack channel.
- **Employee Leave System**: Built an employee leave system using **Vue.js**, **Laravel**, and **MySQL** to handle employee data, manage leave requests, and display leave information on employee calendars.
- **Investment Data Smart Contract**: Authored a smart contract in **Golang** to store investment information on the AWS Hyperledger Fabric blockchain network to facilitate reliable data storage.
- **Automated Translation Workflow**: Programmed a **PHP** scheduler to locate untranslated strings in the codebase, predict English sentences using OpenAI, and apply language updates, saving 10h/week.
- **Slack Bot for System Monitoring**: Developed a **Python** Slack Bot to monitor web scraping bot health, analyze scraped data, and report to engineering Slack channel, reducing support costs by 8%.

Switcheo Labs Singaporean Cryptocurrency Exchange

Software Engineering Intern Oct 2022 - Dec 2022

- Used **Golang** to automatically link markets and liquidity pools for secure allocation of all capital.
- Created a **Golang** search API to aggregate and consolidate data from multiple databases into one call.
- Developed a **TypeScript** service for monitoring CDP transactions and visualizing trades with **React**.

- Built a **TypeScript** Telegram Bot to alert the team about stalled Carbon blockchain transactions.
- **Market-Pool Linkage**: Leveraged **Golang** to automatically link markets and liquidity pools, eliminating manual work and securely allocating USD $130+ million of capital across the exchange.
- **Transaction Service & UI**: Implemented a microservice in **TypeScript** to monitor and collect data on CDP transactions and visualize the trading activities using **React**, serving 35,000 daily visitors.
- **Consolidated Search API**: 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.
- **Telegram Bot for Blockchain Monitoring**: Created a Telegram Bot using **TypeScript** and **Redis** to alert the team about stalled Carbon blockchain transactions, increasing the resolution speed by 83%.

Investree   Jakarta P2P Fintech Lending
Software Engineering Intern   May 2022 - Aug 2022
- Implemented new features using **Vue.js** and **Kotlin** to improve the presentation of portfolio finances.
- Crafted a covenant page with **Vue.js** and **Kotlin**, streamlining contracts for 59,000+ business loans.
- Built RESTful APIs in **Kotlin** for querying, processing, and validating data from **Postgres** databases.
- **Investment Dashboard Enhancement**: Implemented new features using **Vue.js** and **Kotlin** to improve the presentation of financial statements and key metrics, boosting user reviews by 17%.
- **Covenant Page Development**: Designed and developed a covenant page from scratch using **Vue.js** and **Kotlin**, simplifying the contractual agreement process for over 59,000 business loans.
- **RESTful API Development**: 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   Kuala Lumpur, Malaysia
Investment Analyst Intern   Jan 2022 - Apr 2022
- 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.
- Created investment pitch decks, leveraging fundamental analysis to recommend long-term trading opportunities from the Jakarta Stock Exchange; generated a 27% return on recommended picks.
- 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   Singapore
Investment Analyst Intern   May 2021 - Aug 2021
- Conducted detailed financial valuations and analyses of public companies in tech, aerospace, pharmaceutical, ride-hailing, defense, and gaming for potential trading opportunities.
- Wrote investment decks incorporating fundamental analysis to recommend short-term trades on US, London, and German exchanges; delivered 40% returns on recommended picks.
- Produced weekly market summaries covering M&As, macroeconomic news, equities, bonds, FX, and portfolio analyses for client updates.

LEADERSHIP

Perception Gap   International Network
Founder   Jul 2022 - Present
- 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

panglesd/diffcessible Accessible Diff Viewer

- Implemented data structures like Zipper and blocks to optimize diff representation and navigation.
- Developed algorithms for word-level diff views in **OCaml**, enhancing file comparison granularity.
- Programmed side-by-side view and integrated pager functionality for navigation of large diff outputs.

PROJECTS

- **yokurang/lagrangian-multiplier-calculator**: A **Python** program to solve constrained optimization.
- **yokurang/quant-strategy-research**: Researched the performance and patterns of a trading strategy.
- **yokurang/ocaml-chat**: An **OCaml** one-to-one chat app using TCP for real-time messaging and RTT.
- **yokurang/passphrase-generator**: A **Rust** app to generate secure passphrases using Markov chains.

SKILLS

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

Frameworks: React, Vue.js, Next.js, Express.js, Flask, Laravel, AWS (Lambda, DynamoDB)