Fu Wen Tay

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Personal Website   YouTube

EDUCATION

- **University of Oxford** Oxford, United Kingdom
  Master of Engineering in Engineering Science *October 2022 - June 2026*
  - Quantitative Analyst, CapitOx
  - Relevant Courses: Control Systems, Machine Learning, Linear Algebra

EXPERIENCE

- **GIC Private Limited** Singapore
  Software Engineering Intern *Jul 2024 - Sept 2024*
  - **Performance Tuning**: Conducted performance tuning of portfolio **stress tester** and portfolio **attribution dashboard** via profiling of runtime and memory usage of API endpoints and functions with **Pyinstrument** and **memory-profiler**.
  - **Data Retrieval Optimisation**: Implemented switching of data retrieval from **MSSQL server** to **parquet files** from **AWS S3 buckets** to exploit parallel file retrieval, reducing I/O runtime.
  - **Efficient Computations**: Implemented computations in **DuckDB** to leverage lazy-evaluation to process larger-than-memory datasets, and adapted **Singleflight** mechanism to remove redundancy when multithreading, reducing memory usage by up to **90%** and computation runtime by up to **98%**.
  - **Enhanced Data Querying**: Added features such as a date reference to improve data querying abilities, and new endpoint to return breakdown of security return data in greater granularity.

- **Infocomm Media Development Authority** Singapore
  Software Engineering Intern *Jul 2023 - Aug 2023*
  - **Workflow Automation**: Developed and deployed an automation pipeline in **Python** to web scrape open-source data using **Selenium**, and implemented Workato recipes to trigger containerized Lambda functions, retrieve outputs from AWS S3 buckets, and email them to users.
  - **Environment Replication**: Replicated the local environment on **AWS Lambda** using **Dockerfiles**.

PROJECTS

- **YouTube & Blog** *October 2024 - Present*
  - **Content Creation**: Create videos and write articles on investments and financial markets.

- **Algorithmic Trading Bot** *February 2024 - Present*
  - **Trading Bot Development**: Developed a trading bot built on **Alpaca's** API to automate systematic trading strategies, executing trades based on real-time news event from Alpaca's news **websocket** and moving averages.
  - **Data Logging**: Logged news headline and order data using **PostgreSQL** for further analysis and potential strategy refinement.
  - **Backtesting**: Built a vectorised backtesting engine with **NumPy** and **Pandas** to evaluate the historical performance of trading strategies.

- **Generative AI Instagram Bot and Webapp** *August 2023 - Dec 2023*
  - **Instagram Bot Development**: Developed an Instagram bot that generates and posts videos based on the top comment from the previous day.
  - **Web Hosting**: Built a web application hosted on **Heroku**, integrating AWS services such as **AWS S3** for media storage and **AWS Lambda** for automated tasks.
  - **Deployment**: Set up **MongoDB** client for metadata storage and used **Docker** for containerisation, enhancing deployment flexibility.

OTHERS

Achievements: National Training Team for Singapore Physics Olympiad, Captain of College Basketball Team

Languages: Python, C++, MATLAB, Mathematica

Technologies: DuckDB, Pandas, Alpaca, AWS S3 & Lambda