Michael Hoon Yong Hau

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EDUCATION

Singapore University of Technology and Design ⟶ May 2026 – Dec. 2026
Master of Engineering (Research), Artificial Intelligence *(Expected)*

Singapore University of Technology and Design ⟶ Sep. 2022 – May 2026
Bachelor of Engineering, Engineering Systems and Design, Minor in Computer Science *Singapore*

University of California, Berkeley ⟶ Jun. 2023 – Aug. 2023
Summer Exchange, Econometric Analysis *Berkeley, CA*

EXPERIENCE

Natural Language Processing Engineer Intern Mar. 2024 – Dec. 2024
DSO National Laboratories *Singapore*
- Built local Retrieval Augmented Generation (RAG) pipeline for ingesting of internal unstructured documents, via Ollama and LangChain.
- Implemented Advanced RAG techniques for multiple complex documents, experimented with multi-modal methods for image and table parsing capabilities.
- Experiment with and deployed state of the art frameworks such as Query Reranking, Graph Databases, and Hybrid Search Retrieval techniques.

Data Analyst Jan. 2024 – Apr. 2024
Poh Tiong Choon Logistics Ltd. *Singapore*
- Conducted Exploratory Data Analysis with Python on internal data for delivery driver utilisation. Identified key areas for improvement in scheduling and boosted driver utilisation rates by 20%.
- Developed end-to-end automated data pipeline solution for cleaning and analysis with bash scripting, integrating existing database with Python and Power BI, significantly reducing working man-hours.
- Created PowerBI Dashboard for key metrics and patterns on route analysis. Wrote internal report discussing findings

Data Analyst Sep. 2022 – Jan. 2023
Aviation Studies Institute *Singapore*
- Extracted key business insights for industry partner, International Air Transport Association (IATA), via Exploratory Data Analysis in R, SQL, and Python. Conducted qualitative analysis of air cargo demand in Southeast Asia.
- Developed correlation models for predictive analysis of internal air cargo demand data, with open-sourced economic data. Evaluated hypothesis on key drivers of regional air cargo demand.
- Wrote an internal paper discussing findings, presented to IATA and the Civil Aviation Authority of Singapore.

Undergraduate Research Assistant Oct. 2022 – Dec. 2023
Singapore University of Technology and Design *Singapore*
- Explored computational modelling of materials via the Particle-In-Cell (PIC) and Finite-Difference-Time-Domain (FDTD) methods, and conducted qualitative analysis on resulting spectra.
- Research showed similar scattering patterns and Lorentzian behaviour, and will contribute to further studies in simulating optoelectronic devices.
- Worked with open-source code developed in Python using the MEEP library, and PIC algorithm developed via Epoch.

PROJECTS

FinSight.AI | *Python, LangChain, Streamlit* Mar. 2024 – Mar. 2024
- Industry project with Temasek Holdings (Financial Services Department): Large Language Model (LLM) enabled Financial Analysis Assistant via RAG, scalable with existing in-house data infrastructure.
- Summarizes multiple unstructured financial reports and key metrics with internal data, reducing man-hours by 80%. Able to retrieve metadata of reports and allow user to self-verify accuracy, and provide semantic score results.

SKILLS

Languages: Python, R, SQL, Julia, LaTeX
Tools: Git/GitHub, Docker, Ollama, VS Code, DBeaver, Linux, Vim, WSL, Excel, Power BI
Libraries/Frameworks: LangChain, Streamlit, HuggingFace, PyTorch, Pandas, NumPy, Seaborn, scitkit-learn, Plotly, tidyverse (R)