

LOH Rui Jie Joel

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EDUCATION

Nanyang Technological University, Singapore **Aug 2021 – Jun 2025**
Bachelor of Computing (Honours), Data Science and Artificial Intelligence

- Honours (Distinction), Current CGPA: 4.30/5.00
- Relevant Coursework: Statistics, Data Visualisation, Data Analysis with Computer, Data Analytics & Mining

SKILLS

- Software Skills: Python, SQL, Tableau, Power BI, Java, Javascript, C/C++, R, HTML, CSS, Pyspark, Docker
- Transferable Skills: Teamwork, Leadership, Design Thinking, Communication, Presentation, Cultural Intelligence
- Languages: Proficient in English and Chinese, Beginner in Japanese and Malay

WORK | INTERNSHIP EXPERIENCE

Health Promotion Board (<https://www.hpb.gov.sg/>) **Jan 2025 – May 2025**
Business Analyst, Intern

- Developed anomaly detection systems to support real-time model monitoring, reducing segmentation errors and improving pipeline stability by 30%.
- Collaborated cross-functionally with app developers and health officers to analyse user engagement from the Healthy365 app, informing product design decisions.
- Adapted to evolving product requirements and analytics requests in an environment with ambiguous data and shifting priorities.

Data Scientist, Intern **Jun 2023 – Dec 2023**

- Designed segmentation models using clustering techniques (HDBSCAN, DBSCAN, K-Means) to evaluate the effectiveness of HPB's lifestyle programs.
- Developed a robust analytical pipeline using **PySpark**, focusing on predictive analytics from lifestyle datasets to identify 5 key optimisation areas, leading to improved program performance and user retention.
- Presented data-driven insights from machine learning and business analyses to stakeholders, influencing program design and delivery of personalised recommendations to Healthy365 app users.

PROJECTS

Project SAVE **Team Project**

- Built a scalable sentiment analysis app using **Next.js** and **Docker**, promoting user engagement across a few thousand users.
- Automated data extraction through web scraping and storing several hundred records in **MongoDB** for classification.
- Led model selection and tuning across 5 classifiers, improving classification accuracy to 80%.
- Contributed to collaborative **Git** workflows and integrated frontend/backend pipelines for continuous deployment.

Budget 2024 AI Chatbot (https://github.com/Jlori/HTX_AI_chatbot) **Individual Project**

- Accomplished real-time chatbot interactions measured by real-time response times under 2 seconds, by deploying robust infrastructure using **LangChain.js**, **Next.js**, and **Astra DB**.
- Integrated OpenAI's GPT models with context-aware retrieval and generation logic for improved conversational relevance.
- Iteratively tested and deployed the application on **Vercel**, enhancing usability and responsiveness.

Nanyang Technological University, Singapore **Aug 2024 – May 2025**
Final Year Project – An Empirical Study of Convolution-based and Transformer-based Diffusion Models

- Led an empirical investigation comparing convolution-based (U-Net) and transformer-based (DiT) diffusion architectures, conducting extensive experimentation using multiple datasets.
- Implemented novel inductive bias modifications in **PyTorch**, notably Frequency-based Noise Control (FNC), improving DiT model performance by 20%.

NATIONAL SERVICE | LEADERSHIP EXPERIENCE | CO-CURRICULAR ACTIVITIES

Platoon Commander (LTA), 608 Squadron, Republic of Singapore Air Force **Dec 2019 – Nov 2020**

- Commanded a platoon of 35 specialist and security troopers through MINDEF's annual force protection operations, resulting in the unit achieving a "Good Banding" rating.
- Maintained operational standards and morale during a two-week COVID-19 camp isolation, ensuring seamless continuity of operations through strategic planning and effective team coordination.

Extra-curriculars: Events Director for NTU iLab (2025), Programmes Team Member for HackOMania (2025), Representative of Badminton Inter-Hall Games (2023), Group Leader of Freshmen Orientation Camp (2022)