

Timothy Lee

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EDUCATION

Bachelor of Science (B.S.) - Data Science and Artificial Intelligence Aug 2022 – Jun 2026 (Expected)
Nanyang Technological University, Singapore

- **CGPA:** 4.75/5.00
- **Scholarships:** Nanyang Technological College Scholarship, Bigo Excellence Scholarship
- **Awards:** Dean's List AY 23/24
- **Hackathons:** SimplifyNext RPA x Gen AI 2024 (1st Place), DSTA BrainHack 2024 (1st Runner Up), GIC Code To Impact 2024 (2nd Runner Up), HTX HacX 2024 (3rd Runner up)
- **Exchange:** Singapore Management University, University of Waterloo
- **Certifications:** Google Analytics Specialisation, Google UX Specialisation

Diploma with Merit - Engineering Science Apr 2017 – Apr 2020
Ngee Ann Polytechnic, Singapore

- **CGPA:** 3.99/4.00
- **Awards:** Terasaki Electric Medal, Ngee Ann Scholarship
- **Certifications:** Diploma Plus in Advanced Engineering Mathematics

EXPERIENCE

Machine Learning Engineer Intern Aug 2025 – Dec 2025
TikTok, Singapore

- Engineered high-precision Small Language Models (SLMs) via Knowledge Distillation to capture user intent; applied a novel “Random Retrieval Augmented Generation (RAG)” fine-tuning strategy for GeoIntent (0.90 P/R) and semantic query analysis for Timeliness (0.96 P/R).
- Designed and deployed a near-line cache architecture across 16 countries (US, EU, ROW) to serve these query intent signals in real-time.
- Integrated GeoIntent and Timeliness query intent signals into Ranking and Retrieval pipelines across 16 countries (US, EU, ROW), measurably improving local discovery relevance for location-based and time-sensitive search results.

Software Engineer Intern May 2025 – Aug 2025
Goldman Sachs, Singapore

- Engineered a Policy Builder Playground for authorisation policies, featuring custom syntax highlighting and an integrated chatbot delivering 95% compilable code for over 100 internal developers.
- Developed a graph-based Self Healing Code Agent leveraging Retrieval Augmented Generation (RAG), enabling automated code correction, saving an estimated 10 hours per developer weekly.
- Architected and deployed the Self Healing Code Agent backend on Kubernetes, supporting horizontal scaling and high availability for internal developer tooling.

Machine Learning Researcher Intern Jul 2024 – Dec 2024
Digital Trust Centre, Nanyang Technological University, Singapore

- Led development of secure AI systems researching and implementing ML defences against adversarial attacks via Machine Unlearning.
- Research areas include Machine Unlearning, Backdoor Detection in AI.

Software Engineer Intern Jul 2024 – Dec 2024
ShopBack, Singapore

- Spearheaded implementation of Generative AI solutions to optimise internal operations, reducing average handling time (AHT) from 365 seconds to 200 seconds (45% improvement).
- Developed a prompt management version control platform integrating Salesforce and Zendesk, resulting in 80% improved consistency and 60% faster workflows.

Machine Learning Engineer Intern

Apr 2024 – Jul 2024

Home Team Science & Technology Agency, Singapore

- Built a multimodal Large Language Model (LLM) chatbot integrating LLaVA, Whisper, and LLaMA3, reducing case processing time by over 40% for officers.
- Implemented memory capabilities and optimised query retrieval using LangChain and Chroma via Retrieval Augmented Generation (RAG) and advanced metadata filtering.
- Finetuned a LLaMA3 large language model using QLoRA with domain knowledge, improving accuracy by 30% after evaluation.

Full Stack Developer Intern

Dec 2023 – Mar 2024

Siftee, Singapore

- Engineered SEO-optimised web applications using Nuxt.js, mastering state management and dynamic data rendering to enhance user experience and interface responsiveness.
- Implemented secure cloud infrastructure using Google Cloud Platform, integrating Stripe for transactions. Optimised data operations and storage, boosting retrieval speed by 40% and transaction success rates by 25%.
- Leveraged OpenAI with Python to automate ETL tasks, boosting backend efficiency by 50% and ensuring scalable data transformation and integration workflows.

Cloud Engineer Intern

May 2023 – Aug 2023

Singapore Land Authority, Singapore

- Spearheaded the Proof of Concept (POC) on Microsoft Azure and led data virtualisation initiatives utilising geospatial insights via Denodo, elevating data accessibility and fostering enriched insights.
- Designed user-centric dashboards to transform intricate data into actionable insights tailored to users' needs using MicroStrategy.

SKILLS

Languages: Python, TypeScript, Golang, SQL

Machine Learning & AI: PyTorch, LangChain, LangGraph, HuggingFace Transformers

Databases: PostgreSQL, MySQL, MongoDB, Chroma, Redis

Backend & Web Frameworks: FastAPI, Next.js, Express.js, Gin

Cloud & DevOps: AWS, Google Cloud Platform, Docker, Kubernetes

ACADEMIC PROJECTS

Recommendation System Anomaly Detection

2024

- Competed in a machine learning competition, achieving a 94% anomaly detection AUC-ROC score by employing deep neural networks, logistic regression, and one-class SVM.
- Enhanced model performance through extensive feature engineering, utilising techniques such as SMOTE and ELU, successfully identifying and mitigating anomalies in a recommendation system.

AI Product Chatbot

2023

- Designed a conversational AI Streamlit Python app using Langchain and Hugging Face models.
- Enhanced user experience by incorporating features like Conversational Memory, dynamic interaction, and session management, improving context awareness and user experience.
- Utilised Retrieval Augmented Generation for precise and relevant real-time FAQ responses.

Singapore University Guide

2023

- Designed, developed, and deployed a comprehensive university guide using the MERN stack.
- Integrated modern UX techniques, responsive design, ensuring an engaging user experience.
- Seamlessly incorporated OAuth, email notifications, and OpenAI's GPT API.