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:** 4.73/5.00
– **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 SLMs via Knowledge Distillation to capture user intent; applied a novel "Random 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.
– Empowered downstream Ranking and Retrieval to optimise local discovery: prioritising location-based services relative to user GPS and ensuring content validity for time-sensitive queries (e.g., promos, operating status).

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

– Engineered a Policy Builder Playground for authorisation policies, featuring custom syntax highlighting, collaborative sharing, and an integrated chatbot delivering 95% compilable, best-practice code.
– Developed a graph-based Self Healing Code Agent leveraging Retrieval Augmented Generation, enabling automated code correction and optimisation for an internal language.
– Designed and implemented the backend for the agent end-to-end, from architecture to deployment on Kubernetes, ensuring scalable and robust performance.

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, resulting in a 45% improvement in agent efficiency and customer satisfaction.
– Developed a prompt management version control platform integrating Salesforce and Zendesk, resulting in 80% improved consistency, 60% faster workflows, and 30% higher first-contact resolution rates across all customer service channels.

Machine Learning Engineer Intern   Apr 2024 – Jul 2024
Home Team Science & Technology Agency, Singapore

– Developed a multimodal large language model chatbot using open-source LLMs like LLaVA, Whisper, LLaMA3, enhancing government case management efficiency by over 40%.
– Implemented memory capabilities and response streaming and optimised query retrieval using Langchain and Chroma DB via Retrieval Augmented Generation 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

Digital Skills: Typescript, Python, Golang, SQL, NoSQL, React.js, Next.js, Langchain, Langgraph, Docker, Kubernetes, R, AWS, Microsoft Azure, Google Cloud Platform

Soft Skills: Adaptability, Collaborative Teamwork, Data Visualisation, Business Acumen, Creative Insight

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.

CO-CURRICULAR ACTIVITIES

Nanyang Technological University Hall 6   2023 - 2024
Orientation and Hall Pageant Publicity Head

Ngee Ann Lifeguard Corps   2018 - 2019
Captain