

Enge Lou

ENGE001@e.ntu.edu.sg • +65 8452 1342

EDUCATION

Nanyang Technological University, Singapore

Aug 2025 - Dec 2026

Master of Science in Artificial Intelligence

Nanyang Technological University, Singapore

Jul 2022 - Jun 2025

Bachelor of Engineering (Electrical & Electronic Engineering)

- **Current CGPA: 4.25/5.00**
- First class Honours as of AY22/23
- Area of specialization: *Data Analysis & Machine Learning (Computing & Intelligent systems)*
- Relevant Modules: (1) *Machine Learning Design & Application* (2) *Artificial Intelligence & Data Mining* (3) *Computational Intelligence* (4) *Database Systems*

RESEARCH EXPERIENCES

Graduation Project: Deep Learning Based Radar Pulse Deinterleaving

Aug 2024 - May 2025

- Simulated complex electromagnetic environments using a Python-based radar signal generator, producing labeled pulse data with PRI jitter, frequency agility, and Gaussian noise for ML training.
- Developed a deep neural network architecture in PyTorch, integrating 1D-CNN residual blocks and self-attention mechanisms for radar pulse deinterleaving under simulated complex electromagnetic environments.
- Designed a semi-automated labeling pipeline combining time-frequency feature extraction (e.g., instantaneous frequency, spectral features) and K-means clustering to build high-quality training datasets.
- Achieved 97.5% classification accuracy in simulated multi-emitter adversarial scenarios, with a 26% improvement in processing efficiency over traditional TOA/PRI-based methods.

ShieldFlow – Multi-Agent Data Analysis Engine

Aug 2025 - Present

- Architected a multi-agent data analysis engine (Coordinator → Analyst → Verifier → Docker Sandbox), enabling natural language queries on uploaded CSV/Excel files with interactive Plotly chart output.
- Implemented a static security audit layer combining AST parsing and regex-based fallback to reject dangerous Python operations prior to execution, alongside a Docker sandbox with no-network isolation, resource limits, and read-only input mounting for safe code execution.
- Designed a Schema RAG pipeline using ChromaDB — extracting column dtypes and data samples, chunking schema by row, and retrieving top-K relevant chunks via similarity search to inject into Analyst prompts, improving code generation accuracy.
- Built session persistence and multi-turn memory using SQLite to store query history, token usage, cost estimates, and sandbox outputs; selectively injects prior code context only when user intent signals continuation, balancing context efficiency and relevance.

INTERNSHIP EXPERIENCES

Desay SV Automotive, Singapore

Jan 2026 - Present

LLM Applications Engineer Intern

- Developed a cross-departmental PRD-UE-UI automated audit system using pdfplumber, OpenCV, OCR, YOLOv8, and LLMs to detect inconsistencies across copy, interaction paths, components, and visual elements; reduced manual review time by 90%+ with issue detection rate exceeding 95%.
- Built an internal multilingual translation plugin (text and PDF) using locally-deployed LLMs with RAG knowledge base, ensuring domain-specific accuracy and company terminology consistency; integrated into internal workflows to support cross-regional collaboration.
- Co-authored an IEEE-ITSC paper "Structured Runtime Safe Monitoring for Camera-Based Driver Monitoring Systems" — designed the core algorithm framework, conducted experiments, and contributed to manuscript writing;

currently under review.

- Deployed *OpenClaw* for robotic arm control scenarios and developed a scheduled AI news digest service for internal teams.

A*STAR CFAR, Singapore

Aug 2025 - Jan 2026

Senior Scientist I

- Built deep learning pipelines in PyTorch leveraging ESM protein language models for enzyme activity prediction, integrating sequence embedding into classification tasks.
- Designed and maintained reproducible code workflows, including data preprocessing, model training, and inference, under large and imbalanced datasets.
- Automated 3D structure generation, data collection, and augmentation pipelines using RhoFold for structure prediction and API-based retrieval of sequence records by ID, supporting large-scale dataset (40w+) construction for RNA-ligand binding prediction.
- Collaborated across biology and AI domains, strengthening ability to translate domain-specific problems into machine learning solutions.

MiraclePlus Investment Advisor Ltd, Beijing

May 2025 - Jul 2025

Brand Marketing & Content Strategy

- Conducted 10+ founder in-depth interviews to understand their product strategies, market positioning, technical paths, and team-building practices, focusing on emerging AI trends.
- Produced 5+ research reports to support brand marketing and platform content publication, driving a 12% increase in readership and supporting portfolio strategy.
- Tracked developments in the AI and large model domains, and developed a comprehensive research framework for industry trends.
- Utilized AI-focused resources, including search techniques, database integration, and last-mile delivery systems, to deliver structured content for partners' internal reference.

CO-CURRICULAR ACTIVITIES

The Institution Of Engineering and Technology NTU on Campus

Aug 2022 - Jun 2024

Logistics Subcommittee

- Prepare event things (prizes), three levels of awards for microprocessors workshop.
- Collaborated with various departments to ensure smooth progress of activities and managed event timing within a two-hour timeframe, showcasing strong time management and coordination skills.
- Initiated the creation of a digital information hub, providing participants with easy access to event details and updates in real-time.

SKILLS

Languages: *Proficient in English and Chinese*

Programming Languages: *Python (PyTorch, LangChain, ChromaDB, FastAPI, OpenAI API, pdfplumber, OpenCV), SQL, Java, C/C++, HTML*

Machine Learning & Deep Learning: *Regression, Classification, Clustering, Self-Attention Mechanisms, Transfer Learning, Hyperparameter Tuning*

LLM & Generative AI: *Prompt Engineering, Multi-Agent Workflows, Retrieval-Augmented Generation (RAG), Vector Embeddings & Retrieval*

Soft Skills: *Time management skill, Problem-solving skill, Critical thinking, Fast learning skills*