Lim Zhe Xun

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EDUCATION

Nanyang Technological University Aug 2021 - May 2025
Bachelor of Computer Science - Data Science and Artificial Intelligence
Cumulative GPA: 4.67/5.0
Relevant Coursework: Deep Learning, Neural Networks, Data Mining, Computer Vision, Algorithms, Software Engineering

Hwa Chong Junior College Jan 2017 - Dec 2018
GCE 'A' Levels - 88.75/90

WORK EXPERIENCE

Digital Trust Center May 2024 - Dec 2024
Undergraduate Researcher
- Conducted a comprehensive survey of eight state-of-the-art machine unlearning methods for LLMs.
- Designed and curated a dataset to perform approximate unlearning on LLaMA 3 via relabeled gradient descent.
- Developed an interactive Streamlit web application to showcase the performance of the unlearned model.

Robert Bosch ASEAN May 2023 - Dec 2023
Machine Learning Intern
- Designed a pipeline to generate synthetic 3D object data using Blender to augment training datasets.
- Fine-tuned YOLOv4 for object detection in a low-data environment, achieving 96% mAP through data blending strategies.
- Developed Retrieval-Augmented Generation (RAG) system with LLaMa 2, achieving 75% average recall.

DSO National Laboratories May 2022 - Aug 2022
Machine Learning Intern
- Designed and developed a two-stage video segmentation pipeline leveraging FCANet and STCN.
- Architected a web application using FastAPI for the backend and React for the frontend.

PROJECTS

Autonomous PowerPoint Agent
- Designed and implemented a LLM-powered agent framework to autonomously create, manage, and operate PowerPoint.
- Conducted an ablation study to optimize prompt engineering, function calling, and fine-tuning, achieving a 23% improvement in the PPTC benchmark.
- Developed Streamlit application for users to interact via natural language queries.

Sales Lead Generation
- Developed a web scraping pipeline using BeautifulSoup to collect potential prospect business websites.
- Leveraged LLMs to identify Applicant Tracking System (ATS), optimizing lead generation and recruitment insights.

Image Segmentation for Precision Farming
- Designed system to automatically capture and preprocess image data of 100 hydroponic crops simultaneously.
- Benchmarked image segmentation of plant leaves using Mask R-CNN and STCN, reporting > 97% F1-score..

Image Classification for Screw Identification
- Designed a semi-automatic system to collect and label an image dataset of 4 common screw types.
- Fine-tuned and benchmarked VGG16, InceptionV3, EfficientNet and CNN models, achieving > 95% mAP.
- Deployed classification model to Telegram chatbot via Heroku cloud application platform for real-time inference.

Singapore AI Safety Red Teaming Challenge
- Designed adversarial LLM prompts to test intersectional bias within cultural and multilingual context.

Automation of Video subtitling and Quality Control
- Developed Python program and user interface to reduce 80% of video subtitling workload.
- Implemented computer vision techniques to automatically flag out invalid subtitles.

Telegram Chess Bot
- Deployed Telegram bot on Heroku to procedurally generate and post Chess and Othello puzzles via Minimax algorithm.

SKILLS

Languages: Python, Java, C++, R, SQL
Frameworks: Pytorch, Tensorflow, Scikit, NLTK, Langchain, HuggingFace, OpenCV, Pandas, Flask, Streamlit
Certifications: Google AI Essentials, Google Business Intelligence Specialization