Linsen(Forrest) Gao

Email: linseng457@gmail.com
Portfolio: linsen-gao-457.github.io
Mobile: 1-647-564-6577
Github: github.com/Linsen-gao-457

Education

University of Waterloo Sep 2024 - Present
Master of Engineering - Electrical and Computer Engineering *Waterloo, Canada*

Nanjing University of Posts and Telecommunications Sep 2020 - Jun 2024
Bachelor of Engineering - Telecommunication Engineering ***(GPA: 90.04, Ranking 30/586)*** *Nanjing, China*

Skills

Programming Language: Python, MATLAB, C, Verilog, Java

Language: Mandarin(native), English(proficient)

Research

Open-Source Reproduction of SWIM-X Feb 2025 - May 2025
Supervised by Prof. Jimmy Lin *Waterloo, Canada*

- Reproduced and enhanced the SWIM-X multilingual dense retriever for low-resource languages, focusing on Yoruba
- Designed a modular pipeline integrating BM25 + KaLM-based hard negative mining, LLM-assisted evaluation, and LoRA-based fine-tuning of Qwen2.5-3B

SA-CNN Emotional Detection System for Facial Expression Jan 2024 - Jun 2024
Supervised by Prof. Minghai Xu *Nangjing, China*

- Integrated convolutional neural networks (CNN) with self-attention mechanisms to enhance model performance, achieving an overall system accuracy rate of **85%**
- Implemented a YOLO-based model for precise face detection to accurately isolate faces from images in various environments

EEG/EMG-based Emergency Brake Prediction Jan 2022 - Jun 2022
Supervised by Prof. Liya Huang *Nangjing, China*

- Collaborated with a cross-disciplinary team to integrate multiple data sources, including an EEG cap, smartphone accelerometer, and a homemade FPGA for muscle contraction testing
- Implemented a weighted fusion algorithm by using multiple data sources to predict final results, showcasing proficiency in algorithm development and integration
- Awarded 2023 Outstanding Conclusion of Student Innovation and Entrepreneurship Project **(TOP 1%)**

Experience

Software Engineering Intern at ENN Group Jul 2023 - Sep 2023
GPT Collaborative Knowledge Base Module for Enhanced Q&A *Nanjing, China*

- Independently trained Transformer-based model for one of China's largest energy companies
- Achieved 90% answer accuracy rate for company's confidential proprietary knowledge base
- Integrated deployed model with company's internal messaging platform

Project

E-Commerce Web Application Development Jan 2025 - May 2025

- Collaborated with back-end developers to build a React-based e-commerce platform using RESTful APIs
- Followed Agile development practices, actively participating in sprint planning, code reviews, and promoting best practices
- Designed dynamic user interfaces, ensuring an intuitive user experience
- Wrote front-end unit and integration tests using Vitest, improving reliability and test coverage

Trust Region Optimization with Automatic Hyperparameter Tuning Jan 2025 - May 2025

- Conducted optimization experiments on a one-hidden-layer MLP trained on the CIFAR-10 dataset using Trust Region and SGD methods
- Employed Ray Tune to automate hyperparameter tuning, improving reproducibility and performance
- Analyzed performance differences to assess stability, convergence, and efficiency in non-convex settings

Awards

Outstanding Conclusion of Student Innovation and Entrepreneurship Project **(TOP 1%)**	May 2023
School-level first-class scholarship **(TOP 5%)**	Jun 2024
School Class Club Contribution Award	Sep 2021
The Second Prize of Electronic Design Contest for College Students **(TOP 5%)**	Jan 2021
Provincial Second Prize in Advanced Mathematics Contest **(TOP 5%)**	May 2021