

Oscar(Sheng-Wei) Li

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EDUCATION

National Taiwan University

MS in Computer Science, Graduate Institute of Networking and Multimedia

Taipei, Taiwan

September 2022 - June 2024

- Research Area: Generative AI, NLP, CV, Multimodal Deep Learning
- Outstanding Teaching Assistant of the School Year 2023, Spring Semester (Course: Artificial Intelligence)

National Yang Ming Chiao Tung University

BS in Computer Science, Department of Computer Science

Hsinchu, Taiwan

September 2018 - June 2022

- GPA: 4.11/4.3, **Top 4%**, Dean's List for three semesters.
- Won the Excellence Award in the NYCU CS Project Competition, Spring Semester 2022.
- Recipient of the Yin Zhi Tong Memorial Scholarship, awarded to excellent students based on their research projects.

EXPERIENCE

Intel Corporation, Software Engineer Intern | C, C++, GoogleTest, UEFI Driver

July 2023 - Present

- Contributed to the **development of the internal LLM copilot**, improving unit test coverage of 20% without human intervention.
- Refactored the System Management BIOS for next-gen CPU using **C, C++ and Test-Driven Development**, increasing the code coverage from 52% to 100% while reducing 20% responsiveness time.

Tomofun (Pet AI Startup), RD & AI Engineer Intern | Python, JavaScript, AWS, LLMs

March 2023 - June 2023

- Increased the open-world **robustness by 10%** and **reduced training data requirement by 90%** of the Visual-QA model by introducing Parameter Efficient Fine-Tuning (PEFT) methods.
- Achieved an 8/10 user helpfulness rating, proposed a multi-stage pet report generation pipeline that allows **LLMs** to aggregate information of over **100K tokens**, **overcoming the problem of limited context length**.

PROJECTS

Taiwan-Centric Large Language Model, TAIDE | LLM, Continual Pre-training, Instruction Tuning, Safety Alignment

- Collaborated with 4 teams of experts to build a Traditional Chinese LLM through **instruction-tuning, task vectors and reinforcement learning**. The model outperformed GPT-3.5-turbo across 14 tasks in Chinese.
- Investigated the log-linear relationship between **Chinese continual pre-training** corpus size and instruction tuning performance.
- Developed an automated pipeline to create the world's first **instruction-following and human-preference dataset** in Traditional Chinese consisting of 130K samples, using state-of-the-art prompting techniques.

Deep Learning HVAC Controlling System | FastAPI, Online Learning, AIoT, GAN, Domain Adaptation

- Achieved **28% performance improvement, 98% less training data** for forecast network via GAN-inspired domain adaptation.
- Collaborated with TSMC and Honeywell for integrating the solution into TSMC's HVAC control system, resulting in annual energy **cost savings of up to millions of dollars**.
- Awarded Gold in the 2022 Intelligent Living Space Design Competition by ABRI, Ministry of the Interior.

Enhancing Pre-trained Language Model with Multilingual Capability | Tokenizer Training, SentencePiece

- Trained tokenizer from scratch on the TAIDE corpus, and finetuned the English-only T5 to support Traditional Chinese.
- **Reduced perplexity by 10% and tokenization length by 30%** when compared to the official multilingual T5.

NLP Projects | Multimodal Learning, Reinforcement Learning, Parameter-Efficient Fine-Tuning

- **Multimodal Prompt Tuning**: Prompted CLIP with trainable vision prompts, achieving 88% accuracy under 8-shot setting.
- **Reinforcement Learning News Summarization**: Utilized RL to fine-tune mT5 for news summarization, further increasing Rouge score by 0.8% compared to supervised finetuning.

SKILLS

- Programming Languages and Skills: **OOP**, TDD, Python, C++, C, Java, SQL, NoSQL, Algorithms, OS
- Frameworks and development tools: Docker, Git, Unix, React.js, Node.js, Flask, MongoDB, PyTorch, Transformers