

Zirui Song

Third-year Undergraduate Student, University of Technology Sydney (UTS), Sydney, Australia
zirui.song@student.uts.edu.au — +61 0466147806 — <https://ziruisongbest.github.io/> — UTS

RESEARCH INTERESTS

1, Vision Chain of Thought 2, Large Vision language Model 3, Prompt Engineer 4, Hallucination in LVLMM

EDUCATION

Northeastern University, China 09/2021 — 06/2023
Bachelor of Computer Science and Technology Cumulative GPA: 85/100
After two years of academic pursuits, I was honored to be selected as an exchange student for UTS, where I will complete the final two years of my undergraduate studies.

University of Technology Sydney, Australia 07/2023 — 07/2025
Bachelor of Engineering (Honours) - Software Engineering Cumulative GPA: 3.50/4.00

ACADEMIC EXPERIENCE

Natural Language Understanding Lab (Northeastern University) **Prof. Miao Fang**
Undergraduate Research Assistant 04/2022 — 03/2023

- Actively collaborated in the authorship of the research paper "Efficient Reinforcement Learning via Decoupling Exploration and Utilization" subsequently submitted for review at IJCNN 2024
- Spearheaded the setup and maintenance of laboratory servers, ensuring efficient computational environments for research.
- Responsible for configuring the training environment, optimizing resource allocation and network settings.

Rapid-Rich Object Search Lab (Nanyang Technological University) **Dr. Dayan Guan, Prof. Alex Kot**
Undergraduate Research Assistant (Remote) 04/2023 — Present

- Co-authored a significant research project titled "BenchLMM: Benchmarking Cross-style Visual Capability of Large Multimodal Models" as a joint first author. Submitted for a review at CVPR 2024. Our work received over 70 stars on GitHub, demonstrating its academic and industrial impact, and garnered positive reviews from Huggingface community member Niels Rogge and a retweet from AK.
- Led the experimental design phase, independently wrote the experimental programs, and personally conducted all experiments.
- Undertook extensive research on related literature in the field, providing comprehensive summaries and regularly reporting progress to the team

PUBLICATIONS

Conference paper

- BenchLMM: Benchmarking Cross-style Visual Capability of Large Multimodal Models. Rizhao Cai*, **Zirui Song***, Dayan Guan, Zhenhao Chen, Xing Luo, Chenyu Yi, & Alex Kot (2023). arXiv preprint arXiv:2312.02896. The code is available at <https://github.com/AIFEG/BenchLMM>
CVPR 2024 Under review.
* Equal contribution
- Optimistic and Pessimistic Actor in RL: Decoupling Exploration and Utilization. Jingpu Yang, Qirui Zhao, Helin Wang, Yuxiao Huang, **Zirui Song**, & Miao Fang (2023). arXiv preprint arXiv:2312.15965. The code is available at <https://github.com/yydsok/OPARL>
IJCNN 2024 Under review.

SELECTED COURSES

Foundation Courses

- Introduction to Data Analytics 93/100
- Engineering Communication 90/100
- Physical Modeling 91/100
- Software Architecture 4.0/4.0
- Design Innovation & Entrepreneurship Fundamentals 90/100

Programming Courses

- Fundamentals of C++ Programming 99/100
- Java Programming Fundamentals 97/100
- Programming 2 4.0/4.0
- Software Engineering Studio 89/100

Kaggle EXPERIENCES

Kaggle LLM Science QA

Leader

Slivier Medal Top 2% (51/2662)

08/2023 — 10/2023

- Pioneered the use of Retrieval Argument Generation (RAG) in a competitive setting.
- Employed 'gte-base model' for data embedding across three Wikipedia datasets.
- Utilized FAISS library for indexing, enhancing data retrieval efficiency.
- Conducted semantic analysis and optimized queries for top 10 dataset results.
- Created an external knowledge base from retrieved data for training.
- Fine-tuned 'deberta-v3-large' model for a five-class classification task.
- Applied knowledge bases for inference and probability prediction in deberta model.
- Improved model performance by identifying and removing data bias (STEM snippet 2).
- Discovered the importance of data quantity over quality for pre-training models.
- The code is available at <https://github.com/ZiruiSongBest/Kaggle>

SKILLS

- **Programming:** Python, PyTorch, Paddle, Shell, Java, C++,
- **Software:** MATLAB, Visual Studio Code, Git, Github
- **Soft Skills:** Problem-solving, Teamwork, Effective Communication, Time Management, Data Analysis, Critical Thinking, Attention to Detail

REFERENCES

Dr. Dayan Guan

Research Fellow, School of Electrical and Electronic Engineering, Nanyang Technological University, Singapore

E-mail: dayan.guan@outlook.com

Scholar Profiles: [Personal Page](#) — [Google Scholar](#) — [Github](#)

Prof. Alex Kot

Director, Rapid-Rich Object Search Lab, Nanyang Technological University, Singapore

E-mail: eackot@ntu.edu.sg

Scholar Profiles: [NTU - Personal Page](#) — [Google Scholar](#)

Prof. Miao Fang

Director, Natural Language Understanding Lab, Northeastern University, China

E-mail: fangmiao@neuq.edu.cn

Scholar Profiles: [NEU - Personal Page](#)