

Ze Yuan

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Address: University of Science and Technology of China, No.96 Jinzhai Road, Hefei, Anhui, China

Education

University of Science and Technology of China (USTC)

Sept. 2023 - Present

College: School of the Gifted Young

Major: Data Science and Big Data Technology

Overall GPA: **4/4.3**

Ranking: **2/69**

Weighted Average Score: 92.24/100

Core courses: Mathematical Analysis B1 (98/100), Mathematical Analysis B2 (95/100), Linear Algebra B1 (95/100), Probability Theory and Mathematical Statistics (97/100), Computer Programming A (96/100)

Research Interests

- Advancing the use of LLMs to support and enhance scientific research (AI for Science)
- Improving the safety and reliability of LLMs
- Enhancing the reasoning capabilities and interpretability of LLMs

Research Experiences

Optimizing Molecule Language Models by Self-Play Fine-tuning

Oct. 2024 - Present

Advisor: Professor Xiang Wang

Lab: **USTC Lab for Data Science (LDS)**

Refining a language model's ability to describe small molecules using a self-play fine-tuning approach:

- Develop a self-play training framework where the player and opponent models perform comparison tasks.
- Address the scarcity of labeled data by generating pseudo-labels for unlabeled samples using a pre-trained model.
- Integrate GNNs with the language model to enable the incorporation of complex molecular graph structures.

Key innovation:

- Application of self-play adversarial training and pseudo-labeling techniques.
- Improved molecular structure understanding through GNN integration.

Leadership & Activities

Member of the Student Union of the School of the Gifted Young

- Achieved the Outstanding Student Council at the College Level.

Skills

- Proficient in machine learning programming, including data collection and preprocessing, training pipeline design, and model evaluation.
- Experienced in prompt engineering for LLMs, with the ability to design effective prompts for optimized performance.

Honors

Excellent Student Scholarship – Gold

2023

Rose Fund Scholarship

2024