YADI LIU

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EDUCATION

Tsinghua University expected Jul.2026
B.Eng. in Computer Science and Technology

PUBLICATIONS

Erle Zhu, **Yadi Liu**, Zhe Zhang, Xujun Li, JinZhou, Xinjie Yu, Minlie Huang, Hongning Wang. "MAPS: Advancing Multi-Modal Reasoning in Expert-Level Physical Science." (ICLR 2025 Accepted)

RESEARCH EXPERIENCES

Research on Problem-Solving Analysis via Graph-Based Thought Process Modeling Jun.2024 – Present
Advised by Prof. Chun Yu, Tsinghua University *Beijing, China*

- Designed a novel graph-based model to represent and analyze thought processes, proposed a semi-automated generation method based on Large Language Model(LLM) and expert-assisted correction.
- Conducted user experiments using the thought processes of high school students' solving homework problems as an example, developed a system that can display the thought processes and characteristics to teachers and students.
- Proposed algorithms for analyzing individual and group thinking characteristics, providing both students and teachers with valuable assistance for self-improvement.

Research on Explainable and Accurate Multimodal Reasoning for College-Level Circuit Analysis Problems Nov.2023 – Jun.2024
Advised by Prof. Hongning Wang, Tsinghua University *Beijing, China*

- Constructed Question-Answer(QA) dataset and discipline database Knowledge-Base(KB) using ChatGPT4v and Claude3, built a Retrieval-Augmented Generation(RAG) system to retrieve discipline-specific knowledge and aid in language model generation.
- Designed prompts, made Large Language Model(LLM) conduct interactive multi-round questioning for specific discipline, guiding students to think step by step by rhetorical questions without telling the answer directly in the process of answering students' questions.

Research on Revealing User's Attention Scale through Eye-Tracking Techniques: A Geometric Modeling and Verification Study Nov.2023 – Jan.2024
Advised by Prof. Yuntao Wang, Tsinghua University *Beijing, China*

- Proposed two factors relative to attention scale, Pupil Diameter and Intersection Distance, that can be measured through current eye-tracking techniques and explained both factors with geometric models.
- Developed an interface in Python, connected it to an eye-tracking device and collected participants' experimental data.
- Conducted an experiment involving 13 participants, collected data through self-developed website and Tobbi Eye-tracker and analyzed results using matplotlib and numpy.

HONORS & AWARDS

- Excellence in Social Practice Scholarship 2023
- The second prize of the 33rd Beijing College Students Mathematics Contest 2022

SKILLS & LANGUAGES

- Languages: Mandarin(Native), English
- Programming: Good at Python, C/C++, Javascript/Typescript.
- Technical skills: Pytorch, React, Node.js, Django, Docker, MySQL, Git