


ZHEYUAN ZHANG

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Education

Master Student. Computer Science and Technology. Tsinghua University

2022.9 - now

Knowledge Engineering Group. Advised by Prof. Juanzi Li.

3.94/4 GPA (Top 10%)

Bachelor Student. Xinya College. Tsinghua University

2018.9 - 2022.6

Bachelor of Laws. Major in Philosophy, Politics, and Economy (PPE). Minor in Psychology.

3.81/4 GPA (Top 10%)

Research

My research interests are twofold:

Cognitively Understanding Language Models

Employing mathematical methods and cognitive psychology approaches, I aim to: (1) Understand the capabilities and mechanisms of language models; (2) Examine the alignment of language models with human cognitive structures; (3) Investigate the potential applications of language models in mimicking human cognitive processes; and (4) Explore the effects of language models on human cognition and social behavior.

- **Zhang, Z.**, Yu, J., Li, J., Hou, L. (2023). Exploring the Cognitive Knowledge Structure of Large Language Models: An Educational Diagnostic Assessment Approach. In Findings of EMNLP.
- Sabour, S., Liu, S., **Zhang, Z.**, Liu, J. M., Zhou, J., Sunaryo, A. S., ... Huang, M. (2024). EmoBench: Evaluating the Emotional Intelligence of Large Language Models. In Proceedings of ACL.
- Zhang-Li, D., Lin, N., Yu, J., **Zhang, Z.**, Yao, Z., Zhang, X., ... Li, J. (2024). Reverse That Number! Decoding Order Matters in Arithmetic Learning. arXiv preprint arXiv:2403.05845.

AI for Education

Leveraging state-of-the-art AI technologies to improve teaching practices, I work on challenges posed by AI in the educational domain, and explore how the advanced technologies affect learning behaviors and cognitive processes. Recently, I'm investigating on designing multi-agent systems for adaptive learning.

- **Zhang, Z.***, Zhang-Li, D.*, Yu, J., Gong, L., Zhou, J., Liu, Z., Hou, L., Li, J. (2024). Simulating Classroom Education with LLM-Empowered Agents. arXiv preprint arXiv:2406.19226.
- Tu, S.*, **Zhang, Z.***, Yu, J., Li, C., Zhang, S., Yao, Z., ... Li, J. (2023). LittleMu: Deploying an Online Virtual Teaching Assistant via Heterogeneous Sources Integration and Chain of Teach Prompts. In Proceedings of CIKM.
- Zhang-Li, D.*, **Zhang, Z.***, Yu, J., Yin, J. L. J., Tu, S., Gong, L., ... Li, J. (2024). Awaking the Slides: A Tuning-free and Knowledge-regulated AI Tutoring System via Language Model Coordination. arXiv preprint arXiv:2409.07372.
- Yu, J., **Zhang, Z.**, Zhang-li, D., Tu, S., Hao, Z., Li, R. M., ... Sun, M. (2024). From MOOC to MAIC: Reshaping Online Teaching and Learning through LLM-driven Agents. arXiv preprint arXiv:2409.03512.
- Zhong, Q., Yu, J., **Zhang, Z.**, Mao, Y., Wang, Y., Lin, Y., ... Tang, J. (2022). Towards a General Pre-training Framework for Adaptive Learning in MOOCs. arXiv preprint arXiv:2208.04708.

* indicates equal contribution. Only the papers with which I'm deeply engaged are listed here. For a full list, please check my [Google Scholar](#).

Professional Services: Reviewer of ACL 2024, CIKM 2024, EMNLP 2024.

Projects

LittleMu: a Virtual Teaching Assistant on Chinese MOOC platform.

- LittleMu is a Virtual Teaching Assistant that instantly helps students with their learning and provides emotional support. LittleMu is deployed on xuetangx.com, **one of the largest MOOC platform** in China. By 2023, LittleMu has served **more than 80,000 users** with over 300,000 queries from over 500 courses.
- We trained a classifier to enable LittleMu to return the most appropriate responses. For instance, for knowledge-based questions, we utilize knowledge graphs to find the corresponding knowledge; for chit-chat, we leverage the capabilities of LLMs. We also made preliminary attempts to enhance the reasoning abilities of LLMs.
- We conduct experiments with LittleMu and this work was published in **CIKM 2023** (co-first author).

Honors and Awards

Siebel Scholar <i>Siebel Scholar Class 2025, Top 5 in Tsinghua University for outstanding academic performance and leadership</i>	2024
Outstanding Graduates Rewards <i>Outstanding Graduates of Tsinghua University, Outstanding Graduates of Beijing</i>	2022
Toyota Scholarship of Tsinghua University <i>One of the best Comprehensive Scholarships</i>	2021
Excellent Comprehensive Scholarship of Tsinghua University <i>Comprehensive Scholarship</i>	2019, 2020, 2021
Excellent Scholarship of Tsinghua University <i>Academic(2019, 2020, 2021); Social Work(2020); Sports(2019, 2020, 2021)</i>	2021

Hobbies/Miscellaneous

- **Competitive Sports:** I enjoy playing baseball (former member of the Tsinghua University baseball team), basketball (member of CST basketball team), and other competitive sports.
- **Athletics:** I achieved 1st place in the Standing Broad Jump and 3rd place in both the Long Jump and High Jump at the Tsinghua University Track and Field Meet, where I currently **hold the record** for the Standing Broad Jump.
- **Reading:** I have a profound passion for reading. My areas of interest are quite broad, but I have a particular fondness for reading and reflecting on modern social theories. I used to served as an editor of "Society of Sociology", one of China's most influential social media platforms dedicated to sociology, and earned my Bachelor of Laws degree through my research on Thomas Hobbes.