Zheyuan Zhang

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Education

Ph.D. Student. School of Computer Science, Carnegie Mellon University. **2025.8 - now**
Language Technology Institute. WInE Group. Advised by Prof. Sherry Tongshuang Wu. *4.00/4 GPA*

- **Relevant Coursework:** Advanced NLP (A+), Inference Algorithms for Language Modeling (A+)

Master Student. Computer Science and Technology. Tsinghua University **2022.9 - 2025.6**
Knowledge Engineering Group. Advised by Prof. Juanzi Li. *3.95/4 GPA (Top 10%)*

Bachelor Student. Xinya College. Tsinghua University **2018.9 - 2022.6**
Bachelor of Law. Major in Philosophy, Politics, and Economy (PPE). Minor in Psychology. *3.76/4 GPA (Top 10%)*

Research

My Current Research Focus: *Deep Research, Collaborative Literature Exploration, and Sensemaking.*
I believe agents should be fundamentally *user-centric*—assisting users to make sense of information and inspiring new ideas. I study how users make decisions (data) and collaboratively sensemaking (model). Generally, I work on **Human-Centric AI**, in two main directions:

Understanding and Improving Language Models from Human Perspective

I aim to: (1) Understand the capabilities and mechanisms of LMs; (2) Examine the alignment of LMs with human cognitive structures; and (3) Investigate the potential applications of LMs in mimicking human cognitive processes.

1. **Exploring the Cognitive Knowledge Structure of LLMs: An Educational Diagnostic Assessment Approach**
   Zheyuan Zhang, Jifan Yu, Juanzi Li, Lei Hou
   EMNLP 2023 (Findings) [pdf]
2. **NAVIG: Natural Language-guided Analysis with Vision Language Models for Image Geo-localization**
   Zheyuan Zhang, Runze, Li, Tasnim Kabir, Jordan Boyd-Graber
   arXiv preprint, 2025 [pdf]
3. **EmoBench: Evaluating the Emotional Intelligence of Large Language Models**
   Sahand Sabour, Siyang Liu, **Zheyuan Zhang**, June M. Liu, ... Minlie Huang
   ACL 2024 [pdf]

Human-Agent Interaction

I design applications and interaction paradigms for human benefit. I work on AI education, building systems to enhance learning experiences, exploring how these technologies affect learning behaviors and cognitive processes.

1. **Simulating Classroom Education with LLM-Empowered Agents**
   Zheyuan Zhang*, Daniel Zhang-Li*, Jifan Yu, Linlu Gong, ... , Juanzi Li
   NAACL 2025 [pdf]
2. **LittleMu: Deploying an Online VTA via Heterogeneous Sources Integration and Chain of Teach Prompts**
   Shangqing Tu*, **Zheyuan Zhang***, Jifan Yu, Chunyang Li, ... Juanzi Li
   CIKM 2023 [pdf]
3. **Awaking the Slides: A Tuning-free and Knowledge-regulated AI Tutoring System via LM Coordination**
   Daniel Zhang-Li*, **Zheyuan Zhang***, Jifan Yu, Joy Lim Jia Yin, ... Juanzi Li
   KDD 2025 [pdf]
4. **From MOOC to MAIC: Reshaping Online Teaching and Learning through LLM-driven Agents**
   Jifan Yu, **Zheyuan Zhang**, Daniel Zhang-Li, Shangqing Tu, ... Maosong Sun
   arXiv preprint, 2024 [pdf]
5. **Towards a General Pre-training Framework for Adaptive Learning in MOOCs**
   Qingyang Zhong, Jifan Yu, **Zheyuan Zhang**, Yiming Mao, ... Jie Tang
   arXiv preprint, 2022 [pdf]

* indicates equal contribution. Please check my Google Scholar for a full list.

Professional Services:

Conference Reviewer: CIKM 2024, ARR 2024/2025, AAAI 2025, KDD 2025/2026, WWW 2026

Journal Reviewer: npj Science of Learning.

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 with RAG. 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).

MAIC: Massive AI-powered Courses platform in Tsinghua University.

- We built a AI-powered Course platform called MAIC, where we simulate classrooms for student learners: the teachers and classmates are all LLM agents, and **the lessons are automatically conducted** where students can interrupt anytime.
- MAIC now has over **90,000 student users** across universities and high schools. Experimental results show that the classmate agents in the system can help enhance students' sense of **social and cognitive presence**. Students interact more with the system have better learning outcomes.
- Relevant works are accepted by **NAACL 2025** (first author) and **KDD 2025** (co-first author).

Honors and Awards

Outstanding Master's Thesis **2025**
Title: Intelligent Classrooms based on Large Language Model Agents

Outstanding Master's Graduates **2025**
Outstanding Graduates of Beijing, Outstanding Graduates of DCST

Siebel Scholar **2024**
Siebel Scholar Class 2025, Top 5 in Tsinghua University for outstanding academic performance and leadership

Huiyan Talent Comprehensive Scholarship **2024**
Comprehensive Scholarship for Graduate Students

Outstanding Graduates **2022**
Outstanding Graduates of Tsinghua University, Outstanding Graduates of Beijing

Toyota Scholarship of Tsinghua University **2021**
Comprehensive Scholarship

Excellent Comprehensive Scholarship of Tsinghua University **2019, 2020, 2021**
Comprehensive Scholarship

Excellent Scholarship of Tsinghua University **2019, 2020, 2021**
Academic (2019, 2020, 2021); Social Work (2020); Sports (2019, 2020, 2021)

Experiences

WInE Lab, Carnegie Mellon University **2025.7 - Now**
Ph.D. Student. Advised by Prof. Sherry Tongshuang Wu

ModelBest **2025.2 - 2025.7**
Algorithm Intern. Advised by Prof. Zhiyuan Liu

CLIP Lab, University of Maryland **2024.6 - 2024.11**
Research Intern. Advised by Prof. Jordan Boyd-Graber

Foundation Model Research Center, Tsinghua University **2024.3 - 2025.6**
Research Intern. Advised by Prof. Zhiyuan Liu

THUNLP, Tsinghua University **2024.3 - 2025.6**
Research Intern. Advised by Prof. Zhiyuan Liu

THUKEG, Tsinghua University **2021.9 - 2022.6**
Research Intern. Advised by Prof. Juanzi Li