Qianyu He

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Education

Fudan University *PhD, School of Computer Science* *2021.9 - 2026.6 (estimated)*

- **GPA:** 3.75/4.0 **Advisor:** Prof. Yanghua Xiao

Fudan University *Bachelor, School of Computer Science* *2017.9 - 2021.7*

- **GPA:** 3.73/4.0 **Rank:** 4/156

Research Interests

Devoted to *Evaluation* and *Enhancement* of cognitive abilities of Large Language Models (LLMs):

- Enhance LLMs' understanding of **complex instructions**, including complex task descriptions and input.
- Enable LLMs to understand and generate **creative language**, with the emphasis on simile, metaphor.
- Enhance LLM's **reasoning ability fundamentally** by improving the atomic and basic reasoning abilities.

Selected Publications

[*: Equal Contribution]

Can Large Language Models Understand Real-World Complex Instructions?

- **Qianyu He**, Jie Zeng, Wenhao Huang, Lina Chen, Jin Xiao, Qianxi He, Xunzhe Zhou, Lida Chen, et al.
- Preprint, 2023 *(Submitted to AAAI 2024)*

HAUSER: Towards Holistic and Automatic Evaluation of Simile Generation

- **Qianyu He**, Yikai Zhang, Jiaqing Liang, Yuncheng Huang, Yanghua Xiao, Yunwen Chen
- Long paper, in: *ACL 2023*

MAPS-KB: A Million-scale Probabilistic Simile Knowledge Base

- **Qianyu He**, Xintao Wang, Jiaqing Liang, Yanghua Xiao
- Long paper, in: *AAAI 2023*

Can Pre-trained Language Models Interpret Similes as Smart as Human?

- **Qianyu He***, Sijie Cheng*, Zhixu Li, Rui Xie, Yanghua Xiao.
- Long paper, in: *ACL 2022*

Enhancing Quantitative Reasoning Skills of Large Language Models through Dimension Perception

- Yuncheng Huang, **Qianyu He**, Jiaqing Liang, Sihang Jiang, Yanghua Xiao, Yunwen Chen
- Long paper, in: *ICDE 2024*

Project Experience

Chinese Large Language Model CuteGPT-13B Training *2023.04 - Present*

- Deployed for six months, collect over 20,000 user queries, and support various LLMs applications.
- Integrated by *FastChat*, an open platform for training, serving, and evaluating LLMs, boasting 29.8k stars.
- Responsible for studying the impacts of data ratios, template and training strategies on instruction tuning.
- Accelerate inference speed using speculative decoding or paged attention.

Knowledge Representation and Human-Machine Knowledge Boundary Exploration *2021.10 - 2022.11*

- Propose a new framework for knowledge representation methods based on *Dual Process Theory*. Provide novel perspectives on the boundaries and collaboration of human knowledge and machine knowledge.
- Adopt knowledge-aware prompt techniques to improve the performance of fault detection and keyword extraction tasks for technical documents in few-shot scenarios.

Selected Awards

- Intel Fellowship *2023*
- Outstanding Academic Scholarship for Master Students *2022*
- Outstanding Graduates in Shanghai (Top 5%) *2021*
- China National Scholarship (Top 0.2%) *2020*
- First Prize in Shanghai District of *China Undergraduate Mathematical Contest in Modeling* *2019*

Skills

- Programming: Python, C++
- Standard Language Tests: IELTS (7.5/9.0), CET-6 (613/710), CET-4 (624/710)