

Jing Xiong

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Personal page: <https://menik1126.github.io/>

Research interests Complex reasoning tasks of large language models, Formal mathematical reasoning, Natural Language Processing.

Education

Sun Yat-sen University	2021 - 2024
MSc	
Supervisor: <i>Prof. Xiaodan Liang</i> and <i>Prof. Chengming Li</i>	
Central South University	2017 - 2021
B.S. Computer Science	GPA: 3.8/4.0

Honors and scholarships

Finalist Award in the American Mathematical Contest in Modeling for College Students (MCM/ICM)	2020
Second Prize in the Provincial Contest of the China Undergraduate Mathematical Contest in Modeling (CUMCM)	2019
Huawei's 2012 Lab Star of Industrial Manufacturing Large Model	2023
The Scholarship of Sun Yat-sen University	2021
The Scholarship of Central South University	2020
The Scholarship of Central South University	2019
The Scholarship of Central South University	2018
The Scholarship of Central South University	2017

Publications

Expression Syntax Information Bottleneck for Math Word Problems
Jing Xiong*, Chengming Li, Min Yang, Xiping Hu, Bin Hu
In SIGIR 2022.

DT-Solver: Automated Theorem Proving with Dynamic-Tree Sampling Guided by Proof-level Value Function
Haiming Wang, Ye Yuan, Zhengying Liu, Jianhao Shen, Yichun Yin, **Jing Xiong***, Enze Xie, Han Shi, Yujun Li, Lin Li, Jian Yin, Zhenguo Li, Xiaodan Liang
In ACL 2023.

TRIGO: Benchmarking Formal Mathematical Proof Reduction For Generative Language Models
Jing Xiong*, Jianhao Shen, Ye Yuan, Haiming Wang, Yichun Yin, Zhengying Liu, Lin Li, Zhijiang Guo, Qingxing Cao, Yinya Huang, Chuanyang Zheng, Xiaodan Liang, Ming Zhang, Qun Liu

In EMNLP 2023.

LEGO-Prover: Neural Theorem Proving with Growing Libraries

Huajian Xin, Haiming Wang, Chuanyang Zheng, Lin Li, Zhengying Liu, Qingxing Cao, Yinya Huang, **Jing Xiong***, Han Shi, Enze Xie, Jian Yin, Zhenguo Li, Xiaodan Liang, Heng Liao

Submitted to ICLR 2024.

DQ-LoRe: Dual Queries with Low Rank Approximation Re-ranking for In-Context Learning

Jing Xiong*, Zixuan Li, Chuanyang Zheng, Zhijiang Guo, Yichun Yin, Enze Xie, Zhicheng Yang, Qingxing Cao, Haiming Wang, Xiongwei Han, Jing Tang, Chengming Li, Xiaodan Liang

Submitted to ICLR 2024.

Research experience

Huawei Noah's Ark Lab

Research Intern

2022 - Present

Mentors: *Dr. Yichun Yin* and *Dr. Zhijiang Guo*

1. Conducted research on formal theorem proving and developed a proof environment based on Metamath ¹ for the **DT-Solver** research project.
2. Developed an automatically generated dataset named **TRIGO** based on the interactive theorem prover LEAN ². The research project aims to explore the compositional generalization ability of large language models in the context of numerical data.
3. Conducting research on catastrophic forgetting issues of large language models.
4. As a key participant, I was involved in the development of models in the field of operation research for Huawei's **OptVerse** AI solver. I completed the entire process of data collection, annotation, and model optimization. Notably, the contrastive learning method based on graph distance that I designed, using the outputs of large language models for mathematical modeling, achieved an absolute improvement of 8% on the public dataset NL4OPT ³.

¹<https://us.metamath.org/>

²<https://leanprover.github.io/>

³<https://nl4opt.github.io/>