Lingxi Zhang

Email : lz88@rice.edu **Mobile** : +1 3463083035

Research Interests : Multi-Agent Systems, Knowledge Engineering, Large Language Models, NLP

EDUCATION

Rice University Houston, TX

• Ph.D. in **Computer Science** *08 / 2024 – Now*

Renmin University of China Beijing, China

• M.Sc. in **Computer Application Technology** *09 / 2021 – 06 / 2024*

Renmin University of China Beijing, China

• B.E. in **Computer Science and Technology** *09 / 2017 – 06 / 2021*

• B.Sc. in **Mathematics and Applied Mathematics** | Minor

PUBLICATION

[1] **Lingxi Zhang**, Yu-Neng Chuang, Guanchu Wang, Ruixiang Tang, Xuanting Cai, Rajesh Shenoy and Xia Hu. A Decoupled Multi-Agent Framework for Complex Text Style Transfer. In *EMNLP'25 findings*, 2025.

[2] **Lingxi Zhang**, Yue Yu, Kuan Wang and Chao Zhang. ARL2: Aligning Retrievers for Black-box Large Language Models via Self-guided Adaptive Relevance Labeling. In *ACL'24*, pages 3708–3719, Aug. 2024

[3] Yanling Wang, Jing Zhang, **Lingxi Zhang**, Lixin Liu, Yuxiao Dong, Cuiping Li, Hong Chen and Hongzhi Yin. Open-World Semi-Supervised Learning on Graph. In *ICDE'24*, pages 2723–2736, May. 2024

[4] **Lingxi Zhang**, Jing Zhang, Yanling Wang, Shuling Cao, Xinmei Huang, Cuiping Li, Hong Chen and Juanzi Li. FC-KBQA : A Fine-to-Coarse Composition Framework for Knowledge Base Question Answering. In *ACL'23*, pages 1002–1017, Jul. 2023

[5] **Lingxi Zhang**, Xirui Ke, Haoyang Li, Xingmei Huang, Zhonghui Shao, Shulin Cao and Xin Lv. A Survey on Complex Factual Question Answering. In *AI Open'23 (Vol 4)*, pages 1–12, 2022

[6] Jing Zhang, Bo Chen, **Lingxi Zhang**, Xirui Ke and Haipeng Ding. Neural-symbolic Reasoning on Knowledge Graphs. In *AI Open'21 (Vol 2)*, Pages 14–35, 2021

RESEARCH EXPERIENCE

DATA Lab, Rice University Houston, TX

Ph.D. student, supervised by Prof. Hanjie Chen, Prof. Xia Hu.

LLM–Based Multi-Agent Systems *09 / 2024 – Present*

• **Project (lead): Decoupled Multi-Agent Framework for Text Style Transfer.**

– Developed an automatically decoupled multi-agent framework for complex entangled style transfer. Incorporated a self-check strategy for iterative refinement, achieving higher average scores on CDS (style +2.8%, content +4.4%).

• **Project (lead): Multi-Agent Efficiency Benchmark.**

– Benchmarked recent multi-agent frameworks and topologies with a developed metric that measures per-message ROI, rewarding agents that deliver valuable information concisely and cost-effectively.

• **Project (lead): Defending Multi-Agent Safety under Complex Adversarial Scenarios.**

– Identified a complex random-node attack that breaks most multi-agent safeguards, and developed a soft-cut, graph-based framework to defend against it.

Georgia Institute of Technology Atlanta, GA

Research intern, supervised by Prof. Chao Zhang.

Hallucination Issue in Large Language Model *04 / 2023 – 06 / 2024*

• **Project (lead): Self-Guided Retrieval Augmentation for Black-Box Large Language Models.**
– Enhanced a black-box LLM for QA with an adapted retriever trained on LLM-annotated data, improving F1 by 8.3% on NQ and 7.4% on MMLU while reducing hallucination and enhancing few-shot transferability.

Knowledge Engineering Group, Renmin University of China Beijing, China
Graduate research assistant, supervised by Prof. Jing Zhang.

Generalization Issue in Knowledge Base Question Answering (KBQA) *05 / 2022 – 07 / 2023*

• **Project (lead): A Fine-to-Coarse Composition Framework for Knowledge Base Question Answering**
– Decoupled the KB query language into fine-grained components to reduce entanglement and overfitting. The fine-to-coarse framework improves generalization, achieving SOTA on GrailQA and WebQSP while running 4× faster.
• **Project (lead): A LM-Enhanced Solution for Question Answering over Multiple Knowledge Bases.**
– Proposed a learn-then-reason KBQA approach integrating knowledge into LLM for better generalization and end-to-end reasoning. KBLLaMA outperforms baselines and GPT-4, gaining 3.8% on GrailQA and 9.8% on Bio-chemical.

Open-World Semi-Supervised Learning (SSL) on Graph *01 / 2023 – 06 / 2023*

• **Project (participant): Alleviating the imbalance issue to develop open-world SSL on graph.**
– Proved that the imbalance of intra-class variances is a key challenge for graph SSL.

Reasoning and Question Answering over Knowledge Base *04 / 2021 – 06 / 2022*

• **Project (lead): Surveying approaches on knowledge graph/base and group them in an unified framework.**
– Surveyed all recent complex factual question answering models across various data sources, list the similarities among these approaches, and group them into the analysis-extend-reason framework.

WORK EXPERIENCE

Research Intern, ByteDance Beijing, China
• **Document question answering (QA) system about cars.** *06 / 2021 – 06 / 2022*
– Collected QA pairs from the web and designed a ranking loss to fine-tune the BERT model with multiple documents.
– Launched online, which increased the recall rate by 220% and the click through rate (CTR) by 1.3%.

Research Intern, Zhipur Beijing, China
• **Knowledge-ground dialog system based on pre-train language model (PLM).** *07/ 2019 - 02 / 2020*
– Led the knowledge probing group which focus on mining the knowledge fact that stored in PLM's in-parameter.
– Utilized the bootstrap strategy to generate adaptable prompt which improved 2% accuracy on LAMA dataset.

AWARDS & HONORS

• Ken Kennedy Institute Computational Science and Engineering Graduate Recruiting **Fellowship** *08 / 2024*
• Bronze Medal, **Asia-East Continent Final, ACM-ICPC** (Top 30%) *12 / 2020*
• National First Prize, **Contemporary Undergraduate Mathematical Contest in Modeling** (Top 0.7%) *09 / 2020*
• Best All-Girl Team, **Nanjing Regional Contest, ACM-ICPC** (Top 1) *10 / 2019*

PROGRAMMING SKILLS

• **Languages:** Python, C/C++, JavaScript, PHP, HTML, R, MATLAB
• **Frameworks:** PyTorch, TensorFlow, HuggingFace Transformers, AutoGen, LangGraph