

Xiao Liu

University of Chicago

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<https://xxxiaol.github.io>

Academic Experience

- **University of Chicago** 2025.8 - Now
Postdoctoral Scholar, Host: Prof. Chenhao Tan and Prof. James Evans
- **University of California, Los Angeles** 2023.6 - 2023.12
Visiting Graduate Researcher, Host: Prof. Kai-Wei Chang

Education

- **Peking University** 2020.9 - 2025.6
Ph.D. in Computer Applied Technology, Advisor: Prof. Yansong Feng
- **Peking University** 2016.9 - 2020.6
Bachelor of Science in Computer Science (major) and Economics (minor)

Research Interests

Language model reasoning, Causal reasoning, Trustworthy AI, AI for scientific discovery

Selected Honors

- 2026 Rising Star in Data Science
- 2026 DSI Faraco Family Postdoctoral Fellowship (1 out of 17)
- 2025 Outstanding Graduate of Peking University
- 2022 Tung Scholarship (1 out of 27)
- 2018 National Scholarship (top 2%)

Publications

* denotes equal contribution; [\[Google Scholar\]](#)

Conference Publications

1. **Towards a Universal Causal Reasoner.** NeurIPS 2026 (**Spotlight**). [\[PDF\]](#) [\[Data\]](#)
Qirun Dai*, **Xiao Liu***, Jiawei Zhang*, Dylan Zhang, Hao Peng, Chenhao Tan
2. **Introspection Tools Help LLMs Understand and Control Themselves.** NeurIPS 2026.
Xiao Liu*, Junsol Kim*, Shiyang Lai*, Jacy Reese Anthis*, Siyang Wu, Chenhao Tan, James Evans
3. **RefTool: Enhancing Model Reasoning with Reference-Guided Tool Creation.** ICLR 2026. [\[PDF\]](#) [\[Code\]](#)
Xiao Liu, Da Yin, Zirui Wu, Yansong Feng
4. **Heuristic-Based Ideation for Guiding LLMs Toward Structured Creativity.** ICLR 2026
Blogpost. [\[URL\]](#)
Xiao Liu*, Haokun Liu*, Chenhao Tan
5. **From Single to Societal: Analyzing Persona-Induced Bias in Multi-Agent Interactions.** AAAI 2026 (**Oral**). [\[PDF\]](#) [\[Code\]](#)
Jiayi Li*, **Xiao Liu***, Yansong Feng

6. **HCR-REASONER: Synergizing Large Language Models and Theory for Human-like Causal Reasoning.** AACL 2026. [\[PDF\]](#)
Yanxi Zhang, Xin Cong, Zhong Zhang, **Xiao Liu**, Dongyan Zhao, Yesai Wu
7. **Augmenting Research Ideation with Data: An Empirical Investigation in Social Science.** AI4Science Workshop at NeurIPS 2025 (**Spotlight**). [\[PDF\]](#)
Xiao Liu, Xinyi Dong, Xinyang Gao, Yansong Feng, Xun Pang
8. **Recipe2Plan: Evaluating Planning Abilities of LLMs for Efficient and Feasible Multitasking with Time Constraints Between Actions.** EMNLP 2025 (Findings). [\[PDF\]](#)
Zirui Wu, **Xiao Liu**, Jiayi Li, Lingpeng Kong, Yansong Feng
9. **Read it in Two Steps: Translating Extremely Low-Resource Languages with Code-Augmented Grammar Books.** ACL 2025. [\[PDF\]](#) [\[Code\]](#)
Chen Zhang*, Jiuheng Lin*, **Xiao Liu**, Zekai Zhang, Yansong Feng
10. **QUDSELECT: Selective Decoding for Questions Under Discussion Parsing.** EMNLP 2024. [\[PDF\]](#) [\[Code\]](#)
Ashima Suvarna*, **Xiao Liu***, Tanmay Parekh, Kai-Wei Chang, Nanyun Peng
11. **Are LLMs Capable of Data-based Statistical and Causal Reasoning? Benchmarking Advanced Quantitative Reasoning with Data.** ACL 2024 (Findings), AI4Research Workshop 2024 (**Highlight**). [\[PDF\]](#) [\[Code\]](#)
Xiao Liu, Zirui Wu, Xueqing Wu, Pan Lu, Kai-Wei Chang, Yansong Feng
12. **Teaching Large Language Models an Unseen Language on the Fly.** ACL 2024 (Findings). [\[PDF\]](#) [\[Code\]](#)
Chen Zhang, **Xiao Liu**, Jiuheng Lin, Yansong Feng
13. **CASA: Causality-driven Argument Sufficiency Assessment.** NAACL 2024. [\[PDF\]](#) [\[Code\]](#)
Xiao Liu, Yansong Feng, Kai-Wei Chang
14. **Dynosaur: A Dynamic Growth Paradigm for Instruction-Tuning Data Curation.** EMNLP 2023. [\[PDF\]](#) [\[Code\]](#)
Da Yin*, **Xiao Liu***, Fan Yin*, Ming Zhong*, Hritik Bansal, Jiawei Han, Kai-Wei Chang
15. **DiNeR: A Large Realistic Dataset for Evaluating Compositional Generalization.** EMNLP 2023. [\[PDF\]](#) [\[Code\]](#)
Chengang Hu, **Xiao Liu**, Yansong Feng
16. **The Magic of IF: Investigating Causal Reasoning Abilities in Large Language Models of Code.** ACL 2023 (Findings). [\[PDF\]](#) [\[Code\]](#)
Xiao Liu, Da Yin, Chen Zhang, Yansong Feng, Dongyan Zhao
17. **How Many Answers Should I Give? An Empirical Study of Multi-Answer Reading Comprehension.** ACL 2023 (Findings). [\[PDF\]](#) [\[Code\]](#)
Chen Zhang, Jiuheng Lin, **Xiao Liu**, Yuxuan Lai, Yansong Feng, Dongyan Zhao
18. **Counterfactual Recipe Generation: Exploring Compositional Generalization in a Realistic Scenario.** EMNLP 2022. [\[PDF\]](#) [\[Code\]](#)
Xiao Liu, Yansong Feng, Jizhi Tang, Chengang Hu, Dongyan Zhao
19. **Things not Written in Text: Exploring Spatial Commonsense from Visual Signals.** ACL 2022. [\[PDF\]](#) [\[Code\]](#)
Xiao Liu, Da Yin, Yansong Feng, Dongyan Zhao

20. **Dual-Channel Evidence Fusion for Fact Verification over Texts and Tables.** NAACL 2022. [\[PDF\]](#) [\[Code\]](#)
Nan Hu, Zirui Wu, Yuxuan Lai, **Xiao Liu**, Yansong Feng
21. **Everything Has a Cause: Leveraging Causal Inference in Legal Text Analysis.** NAACL 2021 (**Oral**). [\[PDF\]](#) [\[Code\]](#)
Xiao Liu*, Da Yin*, Yansong Feng, Yuting Wu, Dongyan Zhao
22. **Neighborhood Matching Network for Entity Alignment.** ACL 2020 (**Oral**). [\[PDF\]](#) [\[Code\]](#)
Yuting Wu, **Xiao Liu**, Yansong Feng, Zheng Wang, Dongyan Zhao
23. **Interactive Multi-grained Joint Model for Targeted Sentiment Analysis.** CIKM 2019 (**Oral**). [\[PDF\]](#)
Da Yin*, **Xiao Liu***, Xiaojun Wan
24. **Jointly Learning Entity and Relation Representations for Entity Alignment.** EMNLP 2019. [\[PDF\]](#) [\[Code\]](#)
Yuting Wu, **Xiao Liu**, Yansong Feng, Zheng Wang, Dongyan Zhao
25. **Relation-aware Entity Alignment for Heterogeneous Knowledge Graphs.** IJCAI 2019 (**Oral**). [\[PDF\]](#) [\[Code\]](#)
Yuting Wu, **Xiao Liu**, Yansong Feng, Zheng Wang, Rui Yan, Dongyan Zhao

Journal Publications

1. **Eliciting and Improving the Causal Reasoning Abilities of Large Language Models with Conditional Statements.** Computational Linguistics 2025. [\[PDF\]](#)
Xiao Liu, Da Yin, Chen Zhang, Yansong Feng, Dongyan Zhao
2. **A Graph Learning Based Approach for Identity Inference in Dapp Platform Blockchain.** IEEE Transactions on Emerging Topics in Computing 2020. [\[PDF\]](#)
Xiao Liu, Zaiyang Tang, Peng Li, Song Guo, Xuepeng Fan, Jinbo Zhang

Working Papers

1. **Building an Atlas of Social Experiments to Link Studies, Reconcile Conflicts, and Bridge Gaps.** [\[PDF\]](#)
Jiawei Zhang*, Honglin Bao*, Pengda Wang*, Alex Yan*, **Xiao Liu**[✉], James Evans
2. **Markets, Not Planners: Decentralized Orchestration of LLM Agents with Private Information.** [\[PDF\]](#)
Xiao Liu*, Haoyang Li*, Songwei Li, Hongbo Fang, Fengli Xu, Feng Shi, James Evans
3. **Contemporary AI lacks the imagination to diverge or negate in science.** [\[PDF\]](#)
Honglin Bao, Siyang Wu, **Xiao Liu**, Sida Li, Shiyun Cao, James Evans
4. **CausaLab: A Scalable Environment for Interactive Causal Discovery Toward AI Scientists.** [\[PDF\]](#)
Junlin Yang, Dylan Zhang, Xiangchen Song, Qirun Dai, **Xiao Liu**, Yuen Chen, Aniket Vashishtha, Jing Shi, Chenhao Tan, Hao Peng

Teaching

- **Data Science Clinic** Winter 2026, Spring 2026
Mentor of the project with Accountability Counsel, featured in [\[News\]](#) *University of Chicago*
- **Data Thinking and Analytical Methods for the Social Sciences** Spring 2025
Course co-designer, workshop instructor, and textbook co-author *Peking University*
- **Foundations of Natural Language Processing** Spring 2024
Teaching Assistant *Peking University*
- **Empirical Methods in Natural Language Processing** Spring 2023
Teaching Assistant *Peking University*
- **Introduction to Computation** Fall 2020
Teaching Assistant *Peking University*

Service

- **Co-Organizer** [AI & Scientific Discovery Online Seminar](#)
- **Area Chair** ACL Rolling Review 2024-2026
- **Senior Program Committee** AAAI 2026
- **Reviewer** ICLR, NeurIPS, ACL, EMNLP, NAACL, COLM, CSCW, Computational Linguistics, TKDD, TKDE, IPM
- **Volunteer** ACL, EMNLP, NAACL