

Harry Shomer

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POSITIONS	The University of Texas at Arlington Assistant Professor, Department of Computer Science and Engineering	08/2025 – Present
EDUCATION	Michigan State University, USA <ul style="list-style-type: none">Ph.D., Computer Science and EngineeringAdvisor: Dr. Jiliang Tang CUNY Brooklyn College, USA <ul style="list-style-type: none">B.S. in Computer Science	08/2020 – 06/2025 09/2015 – 05/2019
RESEARCH EXPERIENCE	Data Science and Engineering Lab, Michigan State University Research Assistant, Department of Computer Science and Engineering <ul style="list-style-type: none">Topics: Machine Learning on Graphs, Trustworthy AIMentor: Dr. Jiliang Tang The Intelligent Systems Laboratory, HRL Laboratories Research Scientist Intern <ul style="list-style-type: none">Projects: Cannot disclose but related to my general research interests.Mentor: Dr. Jiejun Xu	08/2020 – 06/2025 06/2024 – 09/2024
HONORS AND AWARDS	<ul style="list-style-type: none">ICML Top ReviewerKDD Student Travel AwardNRT-Impacts Fellowship, Michigan State UniversityEngineering Distinguished Scholar, Michigan State UniversityUndergraduate Dean’s List	2025 2024 2021-2022 2020-2021 All Semesters
PUBLICATIONS	Preprints and Submissions * indicates equal contribution <ul style="list-style-type: none">“Subgraph Generation for Generalizing on Out-of-Distribution Links” Jay Revolinsky, <u>Harry Shomer</u>, Jiliang Tang. arXiv preprint arXiv:2507.11710, 2025.“Higher-order Structure Boosts Link Prediction on Temporal Graphs” Jingzhe Liu, Zhigang Hua, Yan Xie, <u>Harry Shomer</u>, Yu Song, Kaveh Hassani, Jiliang Tang. arXiv preprint arXiv:2505.15746, 2025.“RAG vs. GraphRAG: A Systematic Evaluation and Key Insights” Haoyu Han, Yu Wang, <u>Harry Shomer</u>, Yongjia Lei, Kai Guo, Zhigang Hua, Bo Long, Hui Liu, Jiliang Tang. arXiv preprint arXiv:2502.11371, 2025.	

- “Retrieval-Augmented Generation with Graphs (GraphRAG)”
Haoyu Han*, Yu Wang*, Harry Shomer, Kai Guo, Jiayuan Ding, Yongjia Lei, Mahantesh Halapanavar, Ryan A. Rossi, Subhabrata Mukherjee, Xianfeng Tang, Qi He, Zhigang Hua, Bo Long, Tong Zhao, Neil Shah, Amin Javari, Yinglong Xia, Jiliang Tang.
arXiv preprint arXiv 2501.00309, 2024.
- “Enhancing ID and Text Fusion via Alternative Training in Session-based Recommendation”
Juanhui Li, Haoyu Han, Zhikai Chen, Harry Shomer, Wei Jin, Amin Javari, Jiliang Tang.
arXiv preprint arXiv 2402.08921, 2024.

Conference and Journal Papers

- “Empowering GraphRAG with Knowledge Filtering and Integration”
Kai Guo, Harry Shomer, Shenglai Zeng, Haoyu Han, Yu Wang, Jiliang Tang.
In *Proceedings of the Conference on Empirical Methods in Natural Language Processing (EMNLP)*, 2025.
- “A Scalable Pretraining Framework for Link Prediction with Efficient Adaptation”
Yu Song, Zhigang Hua, Harry Shomer, Yan Xie, Jingzhe Liu, Jiliang Tang, Bo Long, Hui Liu.
In *Proceedings of the 31st ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD)*, 2025.
- “Towards Better Benchmark Datasets for Inductive Knowledge Graph Completion”
Harry Shomer, Jay Revolinsky, Jiliang Tang.
In *Proceedings of the 31st ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD)*, 2025.
- “Towards Understanding Link Predictor Generalizability Under Distribution Shifts”
Harry Shomer*, Jay Revolinsky*, Jiliang Tang.
In *Proceedings of the 31st ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD)*, 2025.
- “A LLM-Powered Automatic Grading Framework with Human-Level Guidelines Optimization”
Yucheng Chu, Hang Li, Kaiqi Yang, Harry Shomer, Hui Liu, Yasemin Copur-Gencturk, Jiliang Tang.
In the *Educational Data Mining Conference (EDM)*, 2025.
- “Sub-graph Based Diffusion Model for Link Prediction”
Hang Li, Wei Jin, Geri Skenderi, Harry Shomer, Wenzhuo Tang, Wenqi Fan, Jiliang Tang.
In *Proceedings of the Learning on Graphs Conference (LoG)*, 2024.
- “Mixture of Link Predictors on Graphs”
Li Ma, Haoyu Han, Juanhui Li, Harry Shomer, Hui Liu, Xiaofeng Gao, Jiliang Tang.
In *Proceedings of the Advances in Neural Information Processing Systems (NeurIPS)*, 2024.
- “LPFormer: An Adaptive Graph Transformer for Link Prediction”
Harry Shomer, Yao Ma, Haitao Mao, Juanhui Li, Bo Wu, Jiliang Tang.
In *Proceedings of the 30th ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD)*, 2024.
- “Expression-based machine learning models for predicting plant tissue identity”
Sourabh Palande, Jeremy Arsenault, ..., Harry Shomer, ..., Alejandra Rougon-Cardoso.
In *Applications in Plant Sciences (APPS)*, 2024.
- “Revisiting Link Prediction: A Data Perspective”
Haitao Mao, Juanhui Li, Harry Shomer, Bingheng Li, Wenqi Fan, Yao Ma, Tong Zhao, Neil Shah, Jiliang Tang.
In *Proceedings of the International Conference on Learning Representations (ICLR)*, 2024.

- “Distance-Based Propagation for Efficient Knowledge Graph Reasoning”
Harry Shomer, Yao Ma, Juanhui Li, Bo Wu, Charu C. Aggarwal, Jiliang Tang.
In Proceedings of the Conference on Empirical Methods in Natural Language Processing (EMNLP), 2023.
- “Evaluating Graph Neural Networks for Link Prediction: Current Pitfalls and New Benchmarking”
Harry Shomer*, Juanhui Li*, Haitao Ma, Shenglai Zeng, Yao Ma, Neil Shah, Jiliang Tang, Dawei Yin.
In Proceedings of the Advances in Neural Information Processing Systems (NeurIPS), Datasets and Benchmarks Track, 2023.
- “Learning Representations for Hyper-Relational Knowledge Graphs”
Harry Shomer, Wei Jin, Juanhui Li, Yao Ma, Hui Liu.
In Proceedings of the IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining (ASONAM), 2023.
- “A Mix-up Strategy to Enhance Adversarial Training with Imbalanced Data”
Harry Shomer*, Wentao Wang*, Yuxuan Wan, Yaxin Li, Jiangtao Huang and Hui Liu
In Proceedings of the 32nd ACM International Conference on Information and Knowledge Management (CIKM), 2023.
- “Are Message Passing Neural Networks Really Helpful for Knowledge Graph Completion?”
Juanhui Li, Harry Shomer, Jiayuan Ding, Yiqi Wang, Yao Ma, Neil Shah, Jiliang Tang, Dawei Yin.
In Proceedings of the 61st Annual Meeting of the Association for Computational Linguistics (ACL), 2023.
- “Toward Degree Bias in Embedding-Based Knowledge Graph Completion”
Harry Shomer, Wei Jin, Wentao Wang, Jiliang Tang.
In Proceedings of the ACM Web Conference (TheWebConf), 2023.

Workshop Papers

- “Automatic Label Placement on Maps via Large Language Models”
Harry Shomer, Jiejun Xu.
In the AI for Data Editing (AI4DE) Workshop at KDD, 2025.
- “Detecting Harmful Conversational Content towards LGBTQIA+ Individuals”
Jamell Dacon, Harry Shomer, Shaylynn Crum-Dacon, Jiliang Tang.
In Queer in AI Workshop at NAACL, 2022.

WORKSHOPS

- “Machine Learning on Graphs in the Era of Generative Artificial Intelligence”
Yu Wang, Yu Zhang, Zhichun Guo, Harry Shomer, Haoyu Han, Tyler Derr, Nesreen Ahmed, Mahantesh Halappanavar, Jiliang Tang.
ACM SIGKDD Conference on Knowledge Discovery and Data Mining (**KDD**), 2025.

TUTORIALS

- “Empowering Retrieval-augmented Generation with Graph-structured Knowledge”
Yu Wang, Haoyu Han, Harry Shomer, Kai Guo, Yongjia Lei, Xianfeng Tang, Qi He, Jiliang Tang.
SIAM International Conference on Data Mining (**SDM**), 2025.

PRESENTATIONS

Invited Talks

- “Efficient and Fair Knowledge Graph Completion” 02/2024
Department of Computer Science at Colorado School of Mines
- “Efficient and Fair Knowledge Graph Completion” 01/2024

Presentation at the Mid-Northern U.S Meetup for 2023 Learning on Graphs Conference

- “Toward Degree Bias in Embedding-Based Knowledge Graph Completion” 03/2023
Presentation for CSE Graduate Research Seminar

Conference Oral Presentations

- “Towards Better Benchmark Datasets for Inductive Knowledge Graph Completion” 08/2025
Presentation at KDD’25
- “Automatic Label Placement on Maps via Large Language Models” 08/2025
Presentation at the AI4DE Workshop at KDD’25
- “LPFormer: An Adaptive Graph Transformer for Link Prediction” 08/2024
Presentation at KDD’24
- “Learning Representations for Hyper-Relational Knowledge Graphs” 11/2023
Presentation at ASONAM’23
- “A Mix-up Strategy to Enhance Adversarial Training with Imbalanced Data” 10/2023
Presentation at CIKM’23
- “Toward Degree Bias in Embedding-Based Knowledge Graph Completion” 05/2023
Presentation at TheWebConf’23

MENTORING

- Jay Revolinsky, Michigan State University, PhD student 10/2023 – Current
Projects: Generalizable link prediction, Graph Generation (ongoing)
Mentored paper: Accepted By KDD’25, Under Review
- Jiawe Xu, University of Texas at Austin, PhD student 05/2024 – 05-2025
Project: Fair teaming recommendation via LLMs
Mentored paper: Under Review
- Jingzhe Liu, Michigan State University, PhD student 09/2024 – 02/2025
Project: Link prediction on dynamic graphs
Mentored paper: Under Review
- Yu Song, Michigan State University, PhD student 08/2024 – 10/2024
Project: Transferable and efficient link prediction
Mentored paper: Accepted KDD’25
- Juanhui Li, Michigan State University, PhD student 09/2022 – 02/2024
Past Projects: Knowledge Graph completion, link prediction, recommender systems
Mentored papers: Accepted by ACL’23 and NeurIPS’23, Under Review
- Li Ma, visiting PhD Student from Shanghai Jiao Tong University 09/2023 – 02/2024
Project: Enhancing link prediction via mixture of experts
Mentored paper: Accepted by NeurIPS’24
- Haitao Mao, Michigan State University, PhD student 05/2023 – 09/2023

Project: Revisiting link prediction from a data perspective

Mentored paper: Accepted by ICLR'24

- Hang Li, Michigan State University, PhD student

01/2023 – 09/2023

Project: Subgraph-based diffusion models for link prediction

Mentored paper: Accepted by LoG'24

SERVICES

Organizer

- Machine Learning on Graphs (**KDD**) 2025
- Learning on Graphs (**LoG**) Local Meetup: Mid-Northern USA [\[Link\]](#) 2023

Program Committee Member & Conference Reviewer

- International Conference on Machine Learning (ICML) 2025
- International Conference on Learning Representations (ICLR) 2025
- ACM Conference on Recommender Systems (RecSys) 2024-25
- Association for the Advancement of Artificial Intelligence (AAAI) 2024-26
- Learning on Graphs Conference (LoG) 2024-25
- CIKM 2024 on Graph Techniques for Adversarial Activity Analytics (GTA3) 2024
- Proceedings of the Advances in Neural Information Processing Systems (NeurIPS) 2024-25
- SIGKDD Conference on Knowledge Discovery and Data Mining (KDD) 2024-25
- TheWebConf 2024 Workshop on Graph Foundation Models (GFM) 2024
- Association for Computational Linguistics (ACL) 2023
- Conference on Empirical Methods in Natural Language Processing (EMNLP) 2023
- International Conference on Web Search and Data Mining (WSDM) 2022
- ICDM 2022 Workshop on Machine Learning on Graphs (MLoG) 2022
- WSDM 2022 Workshop on Machine Learning on Graphs (MLoG) 2022
- AAAI 2022 Workshop on Artificial Intelligence for Education (AI4EDU) 2022

Journal Reviewer

- Transactions on Machine Learning Research (TMLR) 2025
- Transactions on Knowledge Discovery from Data (TKDD) 2023-24
- Transactions on Knowledge and Data Engineering (TKDE) 2022-24
- Transactions on Information Systems (TOIS) 2023-24
- Transactions on Intelligent Systems and Technology (TIST) 2023

Conference External Reviewer

- Conference on Computer Vision and Pattern Recognition (CVPR) 2025
- IEEE International Conference on Data Mining (ICDM) 2023
- Conference on Information and Knowledge Management (CIKM) 2021-2024
- SIGKDD Conference on Knowledge Discovery and Data Mining (KDD) 2021/2023
- International Conference on Weblogs and Social Media (ICWSM) 2023

- Conference on Empirical Methods in Natural Language Processing (EMNLP) 2022

Volunteering

- **President** of the CSE Graduate Student Association 2023-2024
- Student Volunteer at KDD'24 2024
- Poster Judge at the MSU Undergraduate Research and Arts Forum 2024
- Student representative at the CSE Graduate Student Orientation 2023