

Harry Shomer

CONTACT INFORMATION

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RESEARCH INTERESTS

- Link Prediction, Knowledge Graph Representation Learning
- Machine Learning on Graphs
- Trustworthy AI

EDUCATION

Michigan State University, USA 08/2020 – 06/2024 (Expected)

- Ph.D., Computer Science and Engineering
- Advisor: Dr. Jiliang Tang

CUNY Brooklyn College, USA 09/2015 – 05/2019

- B.S. in Computer Science

PROFESSIONAL EXPERIENCE

Data Science and Engineering Lab, Michigan State University 08/2019 – Present
Research Assistant, Department of Computer Science and Engineering

- Topics: Link Prediction, Machine Learning on Graphs, Trustworthy AI
- Mentor: Dr. Jiliang Tang

HONORS AND AWARDS

- NRT-Impacts Fellowship, Michigan State University 2021-2022
- Engineering Distinguished Scholar, Michigan State University 2020-2021
- Undergraduate Dean's List Fall 2015-2018 & Spring 2016-2019

OPEN-SOURCE PROJECTS

- **HeaRT** [\[Link\]](#). 06/2023 – Present
 - A new evaluation setting for link prediction methods.
 - Includes the data used for each dataset and code to train and evaluate SOTA methods.

PUBLICATIONS

Preprints and Submissions

* indicates equal contribution

- “LPFormer: An Adaptive Graph Transformer for Link Prediction”
Harry Shomer, Yao Ma, Haitao Mao, Juanhui Li, Bo Wu, Jiliang Tang.
Submitted to the Proceedings of 30th ACM SIGKDD Conference on Knowledge Discovery and Data Mining (**SIGKDD**), 2024.
- “Mixture of Link Predictors”
Li Ma, Haoyu Han, Juanhui Li, **Harry Shomer**, Hui Liu, Xiaofeng Gao, Jiliang Tang.
Submitted to the Proceedings of International Conference on Machine Learning (**ICML**), 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.
Submitted to the Proceedings of 30th ACM SIGKDD Conference on Knowledge Discovery and Data Mining (**SIGKDD**), 2024.

- “Sub-graph Based Diffusion Model for Link Prediction”
Hang Li, Wei Jin, Geri Skenderi, **Harry Shomer**, Wenzhuo Tang, Wenqi Fan, Jiliang Tang
Submitted to Proceedings of the ACM Web Conference (**TheWebConf**), 2024.

Conference and Journal Papers

- “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 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.
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.
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.
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
Proceedings of the 32nd ACM International on 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.
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.
Proceedings of the ACM Web Conference (**TheWebConf**), 2023.
- “Detecting Harmful Conversational Content towards LGBTQIA+ Individuals”
Jamell Dacon, **Harry Shomer**, Shaylynn Crum-Dacon, Jiliang Tang
Queer in AI Workshop at **NAACL**, 2022.

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

Conference Oral Presentations

- “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

TEACHING EXPERIENCE

- Teaching Assistant for CSE 847 Machine Learning (Graduate Level) 2023
 - Primary duties included online discussions, office hours, grading, and review sessions.
 - Gave lectures on “The Perceptron” and “Classification”
- Invited Lecturer for CSE 482 Big Data Analytics (Undergraduate Level) 2023
 - Lectures on ”Recommender Systems”
 - Mentored on honor projects

MENTORING

- Juanhui Li, Michigan State University, PhD student 09/2022 – 02/2024
Past Projects: Link Prediction, Knowledge Graph Completion, Recommendation
Co-authored papers: ACL’23, NeurIPS’23, ASONAM’23, EMNLP’23, KDD’24 (Under Review)
- Haitao Mao, Michigan State University, PhD student 05/2023 – 09/2023
Project: Revisiting Link Prediction from a Data Perspective
Co-authored paper: Accepted by ICLR’24
- Li Ma, visiting PhD Student from Shanghai Jiao Tong University 09/2023 – 02/2024
Project: Enhancing Link Prediction via Mixture of Experts
Co-authored paper: Submitted to ICML’24
- Hang Li, Michigan State University, PhD student 01/2023 – 10/2023
Project: Reliable and Transferable Link Prediction via Graph Diffusion Models
Co-authored paper: Submitted to TheWebConf’24
- Jay Revolinsky, Michigan State University, PhD student 10/2023 – Present
Ongoing Project: Out-Of-Distribution Generalization for Link Prediction

SERVICES

Organizer

- Learning on Graphs (LoG) Conference Local Meetup: Mid-Northern USA [\[Link\]](#) 2023

Program Committee Member & Conference Reviewer

- SIGKDD Conference on Knowledge Discovery and Data Mining (KDD) 2024
- TheWebConf 2024 Workshop on Graph Foundation Models (GFM) 2024
- Association for the Advancement of Artificial Intelligence (AAAI) 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 Knowledge Discovery from Data (TKDD) 2023
- Transactions on Knowledge and Data Engineering (TKDE) 2022-2023
- Transactions on Information Systems (TOIS) 2023-2024
- Transactions on Intelligent Systems and Technology (TIST) 2023

Conference External Reviewer

- IEEE International Conference on Data Mining (ICDM) 2023
- Conference on Information and Knowledge Management (CIKM) 2021-2023
- 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
- CSE Graduate Student Orientation 2023