Kaiwen Dong

PhD. Candidate
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Research Interests

My research interests lie in graph machine learning, representation learning, and data mining. My research aims to enhance machines with greater capability of modeling real-world data in graph structures. Primarily, I focus on strengthening the model's expressiveness of capturing complex relationships and advancing its application in the link prediction task. Furthermore, I am interested in the application of molecular representation learning to propel advancements in chemical science. Additionally, I also build data-driven applications designed to helping people make better decisions.

Education

University of Notre Dame, Notre Dame, IN, US — Aug 2021 – Present
Ph.D. Candidate in Computer Science and Engineering
Advisor: Prof. Nitesh V. Chawla (ACM & IEEE & AAAI & AAAS Fellow)

University of Illinois at Urbana-Champaign, Champaign, IL, US — Aug 2016 – May 2018
Master of Science in Statistics

Sichuan University, Chengdu, China — Aug 2012 – July 2016
Bachelor of Science in Mathematics

Publications [Google Scholar]

Selected Peer-Reviewed Publications

[Neurips'24] **Pure Message Passing Can Estimate Common Neighbor for Link Prediction**
Kaiwen Dong, Zhichun Guo, Nitesh V. Chawla
The Conference on Neural Information Processing Systems, 2024

[LoG'22] **FakeEdge: Alleviate Dataset Shift in Link Prediction**
Kaiwen Dong, Yijun Tian, Zhichun Guo, Yang Yang, Nitesh V. Chawla
The Learning on Graphs Conference, 2022

[ECML PKDD'21] **An Optimized NL2SQL System for Enterprise Data Mart**
Kaiwen Dong, Kai Lu, Xin Xia, David Cieslak, Nitesh V. Chawla
The European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases, 2021

[AAAI'23] **Heterogeneous Graph Masked Autoencoders**
Yijun Tian, **Kaiwen Dong**, Chunhui Zhang, Chuxu Zhang, Nitesh V. Chawla
The AAAI Conference on Artificial Intelligence, 2023

Preprints and Under Submissions

[TKDD] **CORE: Data Augmentation for Link Prediction via Information Bottleneck**
Kaiwen Dong, Zhichun Guo, Nitesh V. Chawla
Under Submission

[WSDM'25] **You do not have to train Graph Neural Networks at all on text-attributed graphs**
Kaiwen Dong, Zhichun Guo, Nitesh V. Chawla
Under Submission, 2025

[WSDM'25] **Universal Link Predictor By In-Context Learning on Graphs**
Kaiwen Dong, Haitao Mao, Zhichun Guo, Nitesh V. Chawla
Under Submission, 2025

[AAAI'25] **MolX: Enhancing Large Language Models for Molecular Learning with A Multi-Modal Extension**
Le Huy Khiem, Zhichun Guo, **Kaiwen Dong**, Xiaobao Huang, Bozhao Nan, Roshni Iyer, Xiangliang Zhang, Olaf Wiest, Wei Wang, Nitesh V. Chawla
Under Submission, 2025

Professional Experience

Research Assistant August 2022 – Present
University of Notre Dame
Worked on robustness and efficiency of link prediction
Advisor: Prof. Nitesh V. Chawla

Research Scientist Intern April 2024 – July 2024
Intuit Inc.
Worked on transaction categorization with relational databases
Mentors: Dr. Kamalika Das and Dr. Xiang Gao

Data Scientist June 2028 – July 2021
Aunalytics Inc.
Worked on systems converting natural language to SQL
Supervisor: Dr. David Cieslak

Teaching Experience

CSE 21312 Data Structures (Prof. Matthew Morrison) Fall 2021

- Role: Teaching Assistant
- Duties: Review assignments, Q&A during office hours, Grade

Professional Services

Conference Reviewer

International Conference on Learning Representations (**ICLR**) 2025
Neural Information Processing Systems (**NeurIPS**) 2024
SIGKDD Conference on Knowledge Discovery and Data Mining (**KDD**) 2025, 2024
Conference on Information and Knowledge Management (**CIKM**) 2024

Journal Invited Reviewer

ACM Transactions on Knowledge Discovery from Data (**TKDD**) 2023

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