Zhe Xu

201 N Goodwin Ave, Urbana, IL 61801
Phone: 480-669-6393 | Website: https://pricexu.github.io | Email: zhexu3@illinois.edu

Education

University of Illinois Urbana-Champaign — Champaign, IL, USA
Ph.D. in Computer Science — *Aug. 2021 – May. 2025 (expected)*

University of Illinois Urbana-Champaign — Champaign, IL, USA
M.S. in Computer Science Thesis: Dense subgraph detection on multi-layered networks — *Aug. 2019 – May. 2021*

Fudan University — Shanghai, China
B.E. in Electronic Engineering — *Sep. 2014 – Jun. 2018*

Publication

Preprint Papers

P1. **Zhe Xu**, Kaveh Hassani, Si Zhang, Hanqing Zeng, Michihiro Yasunaga, Limei Wang, Dongqi Fu, Ning Yao, Bo Long, Hanghang Tong. Language Models are Graph Learners. Under review.

P2. **Zhe Xu**, Menghai Pan, Yuzhong Chen, Huiyuan Chen, Yuchen Yan, Mahashweta Das, Hanghang Tong. Fine-grained Graph Rationalization. Under review.

P3. Ruizhong Qiu, **Zhe Xu**, Wenxuan Bao, Hanghang Tong. Turing Completeness of Prompting. Under review.

P4. Beidi Zhao, Boxin Du, **Zhe Xu**, Liangyue Li, Hanghang Tong. Learning Optimal Propagation for Graph Neural Networks. Under review.

P5. Yuchen Yan, Yuzhong Chen, Huiyuan Chen, Xiaoting Li, **Zhe Xu**, Mahashweta Das, Hanghang Tong. THiGCN: Temporal Heterophilic Graph Convolutional Network for Event-based Continuous Graphs. Under review.

Accepted Conference Papers

C1. **Zhe Xu**, Ruizhong Qiu, Yuzhong Chen, Huiyuan Chen, Xiran Fan, Menghai Pan, Zhichen Zeng, Mahashweta Das, Hanghang Tong. Discrete-state Continuous-time Diffusion for Graph Generation. NeurIPS 2024.

C2. **Zhe Xu**, Yuzhong Chen, Menghai Pan, Huiyuan Chen, Mahashweta Das, Hao Yang, Hanghang Tong. Kernel Ridge Regression-Based Graph Dataset Distillation. SIGKDD 2023.

C3. **Zhe Xu**, Yuzhong Chen, Qinghai Zhou, Yuhang Wu, Menghai Pan, Hao Yang, Hanghang Tong. Node Classification Beyond Homophily: Towards a General Solution. SIGKDD 2023.

C4. **Zhe Xu**, Kaize Ding, Yu-Xiong Wang, Huan Liu, Hanghang Tong. Generalized Few-Shot Node Classification on Graphs. ICDM 2022. **(Best-Ranked Papers)**.

C5. **Zhe Xu**, Boxin Du, Hanghang Tong. Graph Sanitation with Application to Node Classification. TheWebConf 2022.

C6. **Zhe Xu**, Si Zhang, Yinglong Xia, Liang Xiong, Jiejun Xu, Hanghang Tong. DESTINE: Dense Subgraph Detection on Multi-Layered Networks. CIKM 2021.

C7. **Zhe Xu**, Si Zhang, Yinglong Xia, Liang Xiong, Hanghang Tong. Ranking on Network of Heterogeneous Information Networks. IEEE BigData 2020.

C8. Dongqi Fu*, **Zhe Xu***, Bo Li, Hanghang Tong, and Jingrui He. A View-Adversarial Framework for Multi-View Network Embedding. CIKM 2020. (*equal contribution)

C9. Huiyuan Chen, **Zhe Xu**, Chin-Chia Michael Yeh, Vivian Lai, Yan Zheng, Minghua Xu, Hanghang Tong. Masked Graph Transformer for Large-Scale Recommendation. SIGIR 2024.

C10. Qinghai Zhou, Yuzhong Chen, **Zhe Xu**, Yuhang Wu, Menghai Pan, Mahashweta Das, Hao Yang, Hanghang Tong. Graph Anomaly Detection with Adaptive Node Mixup. CIKM 2024.

C11. Zhichen Zeng, Ruizhong Qiu, **Zhe Xu**, Zhining Liu, Yuchen Yan, Tianxin Wei, Lei Ying, Jingrui He, Hanghang Tong. Graph Mixup on Approximate Gromov–Wasserstein Geodesics. ICML 2024.

C12. Haiyun Jiang, Li Cui, **Zhe Xu**, Deqing Yang, et al. Relation Extraction Using Supervision from Topic Knowledge of Relation Labels. IJCAI 2019.

C13. Haobo Xu, Yuchen Yan, Dingsu Wang, **Zhe Xu**, Zhichen Zeng, Tarek F. Abdelzaher, Jiawei Han, Hanghang Tong. SLOG: An Inductive Spectral Graph Neural Network Beyond Polynomial Filter. ICML 2024.

C14. Zhining Liu, Ruizhong Qiu, Zhichen Zeng, Hyunsik Yoo, David Zhou, **Zhe Xu**, Yada Zhu, Kommy Weldemariam, Jingrui He, Hanghang Tong. Class-Imbalanced Graph Learning without Class Rebalancing. ICML 2024.

Accepted Journal Papers

J1. **Zhe Xu**, Kaize Ding, Yu-Xiong Wang, Huan Liu, Hanghang Tong. Generalized Few-Shot Node Classification on Graphs: Toward an Uncertainty-Based Solution. KAIS 2023.

J2. Kaize Ding, **Zhe Xu**, Hanghang Tong, Huan Liu. Data Augmentation for Deep Graph Learning: A Survey. SIGKDD Explorations, 2022.

J3. Qing Chen, Nan Chen, Guande Wu, Ziyan Liu, **Zhe Xu**, Hanghang Tong, Nan Cao. Calliope-Net: Automatic Generation of Graph Data Facts via Annotated Node-link Diagrams. IEEE Transactions on Visualization and Computer Graphics 2023.

Talks

T1. *Lecture-Style Tutorial*: Natural and Artificial Dynamics in GNNs: A Tutorial. WSDM 2023.

T2. *Invited Talk*: Graph Data Distillation. Visa Research. July 2023.

Research Experience

Research Intern — Sunnyvale, CA, USA
Applied Machine Learning Team, Meta. Manager: Dr. Si Zhang. — *May. 2024 – Nov. 2024*
- Research on the interaction between large language models and graph machine learning.

PhD Intern — Palo Alto, CA, USA
Visa Research, Visa Inc. Manager: Dr. Menghai Pan. — *May. 2023 – Aug. 2023*
- Conducted research on graph data augmentation in the life cycle of graph machine learning.

Research Intern — New York City, NY, USA
Applied Machine Learning Team, Meta. Manager: Kelvin Niu. — *May. 2022 – Aug. 2022*
- Constructed a large-scale representation learning system on user-video interaction data via graph neural networks.

Algorithm Engineer Intern — Hangzhou, Zhejiang, China
Search Department, Alibaba Group. Manager: Dr. Muhua Zhu. — *Jun. 2018 – Aug. 2018*
- Constructed E-commerce knowledge graphs on specific shopping topics.

Graduate Research Assistant — Urbana, IL, USA
University of Illinois Urbana-Champaign. Advisor: Prof. Hanghang Tong. — *Aug. 2019 – Present*
- Conducted research on augmenting graph data

Graduate Research Assistant — Tempe, AZ, USA
Arizona State University. Advisor: Prof. Hanghang Tong. — *Aug. 2018 – Aug. 2019*
- Conducted research on multi-layered networks.

Undergraduate Research Assistant — Shanghai, China
Fudan University. Advisor: Prof. Yanghua Xiao. — *Sep. 2016 – Jun. 2018*
- Constructed a financial product knowledge base and a financial product Q&A system (Chinese).

Grant Experience

- Helped a successful NSF proposal on 'SLES: NetSafe: Towards a Computational Foundation of Safe Graph Neural Networks.'
- Helped a successful NSF proposal on 'Collaborative Research: Towards a Theoretic Foundation for Optimal Deep Graph Learning.'

Teaching Experience

Teaching Assistant Champaign, IL, USA
CS 514 Advanced Topics in Network Science *Fall 2023*

Teaching Assistant Champaign, IL, USA
CS 512 Data Mining Principle *Fall 2022, Spring 2021*

Teaching Assistant Champaign, IL, USA
CS 412 Introduction to Data Mining *Fall 2021*

Service

Conference reviewer: AISTATS (2025), ICML (2024), SDM (2024), ICLR (2024-2025), AAAI (2023-2025), NeurIPS (2023-2024), KDD (2023,2025), CIKM (2021-2025), TheWebConf (2023-2025).
Journal reviewer: TNNLS, TVCG, TKDD.
Workshop reviewer: GLFrontiers (2024), TrustLOG (2022)
Conference subreviewer: ICDCS (2022), SIGIR (2021), CIKM (2019), ICDCS (2019).