

ZHINING LIU

Email: liu326@illinois.edu ◊ Homepage: <https://zhiningliu.com>

201 N. Goodwin Ave, Urbana, IL 61801

 Github:ZhiningLiu1998  GoogleScholar  LinkedIn

EDUCATION

- **University of Illinois at Urbana-Champaign** Urbana, IL
Ph.D. in Computer Science Aug. 2022 - Present
Advisor: Prof. [Hanghang Tong](#)
- **Jilin University** Changchun, China
M.Eng. in Computer Science Aug. 2019 - July 2022
Advisor: Prof. [Yi Chang](#)
- **Jilin University** Changchun, China
B.Sc. in Computer Science Aug. 2015 - July 2019
Tang Ao-Qing Honor Program

EXPERIENCE

- **University of Illinois at Urbana-Champaign** Urbana, IL
Research Assistant Aug. 2022 - Present
 - Conducted research on graph data mining and fair machine learning.
 - Advisor: Prof. [Hanghang Tong](#)
- **Amazon.com, Inc.** Seattle, WA
Applied Scientist Intern May 2023 - Aug. 2023
 - Multi-task learning for partial ordered entity ranking in shopping funnel.
 - Mentors: Dr. [Minmin Shen](#), Dr. [Vassilis N. Ioannidis](#), Dr. [Changhe Yuan](#)
- **Microsoft Research Asia** Beijing, China
Research Intern Aug. 2018 - June 2019
 - Large-scale highly-imbalanced classification for damage risk prediction in intelligent logistics.
 - Proposed solution adopted by industry-leading company, and published on ICDE and NeurIPS.
 - Mentors: Dr. [Wei Cao](#), Dr. [Jiang Bian](#)

PUBLICATIONS

- **Zhining Liu***, Eunice Chan*, Ruizhong Qiu, Yuheng Zhang, Ross Maciejewski, Hanghang Tong. *Group Fairness via Group Consensus*. In ACM Conference on Fairness, Accountability, and Transparency (**FAccT**), 2024.
- Hyunsik Yoo, Zhichen Zeng, Jian Kang, Ruizhong Qiu, David Zhou, **Zhining Liu**, Fei Wang, Charlie Xu, Eunice Chan, Hanghang Tong. *Ensuring User-side Fairness in Dynamic Recommender Systems*. In 2024 ACM Web Conference (**WWW**), 2024.
- Zhichen Zeng, Boxin Du, Si Zhang, Yinglong Xia, **Zhining Liu**, Hanghang Tong. *Hierarchical Multi-Marginal Optimal Transport for Network Alignment*. In 38th AAAI Conference on Artificial Intelligence (**AAAI**), 2024.
- **Zhining Liu***, Hangting Ye*, Wei Cao, Amir Mohammad Amiri, Jiang Bian, Yi Chang, Jon D. Lurie, Jim Weinstein, Tie-Yan Liu. *Web-based Long-term Spine Treatment Outcome Forecasting*. In 29th ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (**KDD**), 2023.

- **Zhining Liu***, Hangting Ye*, Xinyi Shen, Wei Cao, Shun Zheng, Xiaofan Gui, Huishuai Zhang, Yi Chang, Jiang Bian. *UADB: Unsupervised Anomaly Detection Booster*. In IEEE 39th International Conference on Data Engineering (**ICDE**), 2023. [\[Paper\]](#) [\[Code\]](#)
- Warmley, Dana, Alex Waagen, Jiejun Xu, **Zhining Liu**, and Hanghang Tong. *A Survey of Explainable Graph Neural Networks for Cyber Malware Analysis*. In Proceedings of the 2022 IEEE International Conference on Big Data (**Big Data**), pp. 2932-2939. IEEE, 2022.
- Guo, Kai, Xiaofeng Cao, **Zhining Liu**, and Yi Chang. *Taming Over-Smoothing Representation on Heterophilic Graphs*. Information Sciences (2023): 119463. [\[Paper\]](#)
- **Zhining Liu**, Pengfei Wei, Jing Jiang, Wei Cao, Jiang Bian, and Yi Chang. *MESA: boost ensemble imbalanced learning with meta-sampler*. In Proceedings of the 33rd Advances in Neural Information Processing Systems (**NeurIPS**), 2020. [\[Paper\]](#) [\[Code\]](#)
- **Zhining Liu**, Wei Cao, Zhifeng Gao, Jiang Bian, Hechang Chen, Yi Chang, and Tie-Yan Liu. *Self-paced ensemble for highly imbalanced massive data classification*. In Proceedings of the IEEE 36th International Conference on Data Engineering (**ICDE**), pp. 841-852. IEEE, 2020. [\[Paper\]](#) [\[Code\]](#)

Under Review

- **Zhining Liu**, Ruizhong Qiu, Zhichen Zeng, Yada Zhu, Hendrik Hamann, Hanghang Tong. *AIM: Attributing, Interpreting, Mitigating Data-encoded Unfairness*. In submission to ACM **SIGKDD**'24.
- **Zhining Liu**, Zhichen Zeng, Ruizhong Qiu, Hyunsik Yoo, David Zhou, Zhe Xu, Yada Zhu, Kommy Weldemariam, Jingrui He, and Hanghang Tong. *Class-Imbalanced Graph Learning without Class Re-balancing*. In submission to **ICML**'24.
- 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*. In submission to **ICML**'24.
- Wenxuan Bao, Zhichen Zeng, **Zhining Liu**, Hanghang Tong, Jingrui He. *AdaRC: Test-Time Adaptation for Structure Shifts on Graphs*. In submission to **ICML**'24.

Preprint

- **Zhining Liu**, Jian Kang, Hanghang Tong, and Yi Chang. *IMBENS: ensemble class-imbalanced learning in python*. arXiv:2111.12776. [\[Paper\]](#) [\[Code\]](#)
- **Zhining Liu**, Pengfei Wei, Zhepei Wei, Boyang Yu, Yuan Tian, Jing Jiang, Wei Cao, Jiang Bian, Yi Chang. *Handling Inter-class and Intra-class Imbalance in Class-imbalanced Learning*. arXiv:2111.12791.

(*indicates equal contribution)

OPEN-SOURCE PROJECTS

-
- **IMBENS: class-imbalanced ensemble learning in Python** (2000+ downloads/m) 2022
 - Python toolbox for class-imbalanced/long-tailed ensemble learning.
 - Links: [\[Github\]](#) [\[Documentation\]](#) [\[Gallery\]](#) [\[PyPI\]](#)
 - **Awesome Imbalanced Learning** (1,200+ stars) 2022
 - Curated list of imbalanced learning papers, codes, and libraries.
 - Links: [\[English\]](#) [\[Chinese\]](#)
 - **Awesome Machine Learning Resources** (400+ stars) 2020
 - Curated list of awesome resources across various machine learning topics.
 - Links: [\[English\]](#) [\[Chinese\]](#)

(2,000+ stars in total on Github by April 2024)

AWARDS AND HONORS

- **Top 10 Honorary Graduates (Highest Honor)**, Jilin University 2022
- **National Scholarship (Top 0.2%)**, Ministry of Education of China 2019,2020
- Academic Performance Scholarship, Jilin University 2019,2020,2021
- Undergraduate Research Scholarship, Jilin University 2018
- National Endeavor Scholarship, Ministry of Education of China 2017
- Student Service Award, Jilin University 2016,2017,2018,2019

PROFESSIONAL SERVICES

- **Conference Program Committee/Reviewer**
 - ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (KDD) 2024
 - The 2nd Workshop on Trustworthy Learning on Graphs (TrustLOG) 2024
 - The 1st Workshop on Trustworthy Learning on Graphs (TrustLOG) 2022
 - IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS) 2022
- **Journal Reviewer**
 - IEEE Transactions on Knowledge and Data Engineering (TKDE) 2023
 - IEEE Transactions on Knowledge and Data Engineering (TKDE) 2022
 - IEEE Transactions on Knowledge and Data Engineering (TKDE) 2021
 - IEEE Transactions on Knowledge and Data Engineering (TKDE) 2020
 - IEEE Transactions on Cybernetics 2020
 - Elsevier Neurocomputing (Neurocomputing) 2020
 - IEEE Transactions on Knowledge and Data Engineering (TKDE) 2019
 - Elsevier Neurocomputing (Neurocomputing) 2019
- **External Reviewer**
 - ACM International Conference on Information and Knowledge Management (CIKM) 2022
 - ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (KDD) 2020
 - IEEE International Conference on Data Mining (ICDM) 2019
- **Conference Volunteer**
 - ACM SIGIR Conference on Research and Development in Information Retrieval (SIGIR) 2020

MENTORING EXPERIENCE

- Mr. Hangting Ye (was B.Sc. & Ph.D. student at Jilin University, China) 2021 - 2022
 - Research on Intelligent Healthcare and Anomaly Detection.
 - Led to publications in IEEE ICDE and ACM SIGKDD.

MISCELLANEOUS

- I blog on [ZhiHu](#) (a Chinese platform like Quora) and have 3k+ followers and 1m+ reads.

[CV compiled on Friday 5th April, 2024]