

# ZHINING LIU

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## EDUCATION

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- **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

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- **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

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- **Zhining Liu**, Ruizhong Qiu, Zhichen Zeng, Yada Zhu, Hendrik Hamann, Hanghang Tong. *AIM: Attributing, Interpreting, Mitigating Data-encoded Unfairness*. In 30th ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (**KDD**), 2024.
- **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 41st International Conference on Machine Learning (**ICML**), 2024.
- 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 41st International Conference on Machine Learning (**ICML**), 2024.
- **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](#)]
- Warmsley, 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. [[Paper](#)]
- 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**), 2020. [[Paper](#)] [[Code](#)]

### Under Review

- Wenxuan Bao, Zhichen Zeng, **Zhining Liu**, Hanghang Tong, Jingrui He. *AdaRC: Test-Time Adaptation for Structure Shifts on Graphs*.

### 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

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- **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 May 2024)

## AWARDS AND HONORS

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- **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

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- **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) 2024
  - 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

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- 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

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

[CV compiled on Sunday 19<sup>th</sup> May, 2024]