

# 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](#)  
**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 @*IDEA Lab* Aug. 2022 - Present  
– Advisor: Prof. [Hanghang Tong](#)
- **Amazon.com, Inc.** Palo Alto, CA & Seattle, WA  
Applied Scientist Intern @*Search Experience Science* May 2024 - Aug. 2024  
– We propose to improve the factuality of LLMs in context-based question answering via automatic contextual highlighting (in submission to ACL ARR).  
– Mentors: Dr. [Rana Ali Amjad](#)  
Applied Scientist Intern @*Search Experience Science* 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 @*Machine Learning Group* Aug. 2018 - June 2019  
– Large-scale highly-imbalanced classification for 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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### First/Co-first Author

- **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. [[Paper](#)] [[Code](#)]
- **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. [[Paper](#)] [[Code](#)]
- **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. [[Paper](#)]

- **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. [Paper]
- **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]
- **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]

### Co-author Papers

- Xiao Lin, **Zhining Liu**, Dongqi Fu, Ruizhong Qiu, Hanghang Tong. *BackTime: Backdoor Attacks on Multivariate Time Series Forecasting*. In Proceedings of the 38th Advances in Neural Information Processing Systems (**NeurIPS**), 2024. (**Spotlight Paper**) [Paper]
- 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. [Paper]
- 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. [Paper]
- 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. [Paper]
- Warmesley, 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]

### Under Review

- **Zhining Liu**, Rana Ali Amjad, Ravinarayana Adkathimar, Tianxin Wei, Hanghang Tong. *SelfElicit: Your Language Model Secretly Knows Where is the Relevant Evidence*. In submission to **ACL ARR**.
- Wenxuan Bao, Zhichen Zeng, **Zhining Liu**, Hanghang Tong, Jingrui He. *AdaRC: Test-Time Adaptation for Structure Shifts on Graphs*. In submission to **ICLR'25**.
- Lingjie Chen, Ruizhong Qiu, Siyu Yuan, **Zhining Liu**, Tianxin Wei, Hyunsik Yoo, Zhichen Zeng, Deqing Yang, Hanghang Tong. *WAPITI: A Watermark for Finetuned Open-Source LLMs*. In submission to **ICLR'25**.
- Dongqi Fu, Yada Zhu, **Zhining Liu**, Lecheng Zheng, Xiao Lin, Liri Fang, Katherine Tieu, Onkar Bhardwaj, Kommy Weldemariam, Hanghang Tong, Hendrik Hamann, Jingrui He. *EarthBench: A Multi-Modal Climate Data Benchmark with a Simple Generative Method*. In submission.

- Yuchen Yan, Yuzhong Chen, Huiyuan Chen, Xiaoting Li, Zhe Xu, Zhichen Zeng, **Zhining Liu**, Hanghang Tong. *THEGCN: Temporal Heterophilic Graph Convolutional Network*. In submission.

## Preprints

- **Zhining Liu**, Jian Kang, Hanghang Tong, and Yi Chang. *IMBENS: ensemble class-imbalanced learning in python*. arXiv:2111.12776. [[Paper](#)] [[Github Repository](#)] [[Documentation](#)]
- **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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**2,600+ stars in total on [Github](#) by November 2024**

- **(300+ stars) IMBENS: Class-imbalanced Ensemble Learning in Python** 2022
  - **3K+ downloads/month** Python toolbox for class-imbalanced ensemble learning
  - Links: [[Github](#)] [[Documentation](#)] [[Gallery](#)] [[PyPI](#)]
- **(1,400+ stars) Awesome Imbalanced Learning** 2022
  - Curated list of imbalanced learning papers, codes, and libraries.
  - Links: [[English](#)] [[Chinese](#)]
- **(500+ stars) Awesome Machine Learning Resources** 2020
  - Curated list of awesome resources across various machine learning topics.
  - Links: [[English](#)] [[Chinese](#)]

## SELECTED AWARDS & 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 Pattern Analysis and Machine Intelligence (TPAMI) 2024
  - 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

## TEACHING EXPERIENCE

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- UIUC CS 512 Data Mining Principle (Main Teaching Assistant) Spring, 2024
  - Lecturer: Prof. Hanghang Tong

## 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 **4K+** **followers** and **1M+** **reads**.

*[CV compiled on Friday 15<sup>th</sup> November, 2024]*