ZHINING LIU

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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
  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 @*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

- 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]

- **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 Rebalancing.* In 41st International Conference on Machine Learning (**ICML**), 2024. [Paper] [Code]

- 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]

- **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]

- 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]

- **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]

- 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

- **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.

Preprint

- **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

2,600+ stars in total on <u>Github</u> by November 2024

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

SELECTED AWARDS & 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 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

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 <u>ZhiHu</u> (a Chinese platform like Quora) and have **4K+ followers** and **1M+ reads**.

[CV compiled on Tuesday 12th November, 2024]