# ZHINING LIU

Email: liu326@illinois.edu ◇ Homepage: https://zhiningliu.com

201 N. Goodwin Ave, Urbana, IL 61801

 **Github**:ZhiningLiu1998   **GoogleScholar**  **Linkedin**

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## EDUCATION

- **University of Illinois at Urbana-Champaign**                                   Urbana, IL
  Ph.D. in Computer Science                                                  Aug. 2022 - Present
  Advisor: Dr. Hanghang Tong

- **Jilin University**                                                        Changchun, China
  M.Eng. in Computer Science                                              Aug. 2019 - July 2022
  Advisor: Dr. Yi Chang

- **Jilin University**                                                        Changchun, China
  B.Sc. in Computer Science                                               Aug. 2015 - July 2019
  Tang Ao-Qing Honor Program

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## EXPERIENCE

- **University of Illinois at Urbana-Champaign**                                   Urbana, IL
  *Research Assistant*                                                      Aug. 2022 - Present
  – Conducted research on learning from imbalanced and biased graph data.
  – Advisor: Dr. Hanghang Tong

- **Amazon**                                                                     Seattle, WA
  *Applied Scientist Intern*                                              May 2023 - Aug. 2023
  – Conducted research on multi-task learning for entity ranking in shopping funnel.
  – Mentors: Dr. Minmin Shen and Dr. Changhe Yuan

- **Microsoft Research Asia**                                                  Beijing, China
  *Research Intern*                                                      Aug. 2018 - June 2019
  – Conducted research on large-scale highly-imbalanced classification in intelligent logistics.
  – Mentors: Dr. Jiang Bian, Dr. Wei Cao

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## PUBLICATIONS

**Under Review**

- **Zhining Liu**, Zhichen Zeng, Hyunsik Yoo, David Zhou, Zhe Xu, Yada Zhu, Komminis Weldemariam, Jingrui He, Hanghang Tong. *Topological Augmentation for Imbalanced Graph Learning.* In submission.

**Conference Paper**

- Hangting Ye*, **Zhining Liu***, 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.

- Hangting Ye*, **Zhining Liu***, 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]

- **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]

**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** (35k+ downloads)     2022
  - Python package for class-imbalanced /long-tailed ensemble learning.
  - Links: [Github] [Documentation] [Gallery] [PyPI]
- **Awesome Machine Learning Resources** (1k+ stars)     2022
  - Curated list of imbalanced learning papers, codes, and libraries.
  - Links: [English] [Chinese]
- **Awesome Imbalanced Learning** (400+ stars)     2020
  - Curated list of awesome resources across various machine learning topics.
  - Links: [English] [Chinese]

(1,900+ stars in total on Github by May 2023)

## AWARDS AND HONORS

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|---|---:|
| • Top 10 Honorary Graduates (Highest Honor), Jilin University | 2022 |
| • National Scholarship, 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

- **Program Committee/Reviewer**
  - IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)     2022
  - The 1st Workshop on Trustworthy Learning on Graphs (TrustLOG)     2022

- **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

- **Journal Reviewer**
  - IEEE Transactions on Knowledge and Data Engineering (TKDE)     2019,2020,2021,2022
  - Elsevier Neurocomputing (Neurocomputing)     2019,2020
  - IEEE Transactions on Cybernetics     2020

- **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 a publications in IEEE ICDE 2023 and ACM SIGKDD 2023.

## MISCELLANEOUS

- I blog on <u>ZhiHu</u> (a Chinese platform like Quora) and have 3k+ followers and 1m+ reads.

*[CV compiled on Monday 29$^{th}$ May, 2023]*