Yue Zhao

CONTACT
INFORMATION

CONTACT
INFORMATION

✉ yue.z@usc.edu
� github.com/yzhao062
in linkedin.com/in/yzhao062
⌂ https://viterbi-web.usc.edu/~yzhao010/
🏛 USC Faculty Directory
G Google Scholar

213-821-2369
CS Department, GCS Hall
Los Angeles, CA
United States, 90089
Department of Computer Science
University of Southern California

RESEARCH
SUMMARY

My research builds **reliable, robust, and scalable AI** that advances science and benefits society. I focus on *rigorous algorithmic foundations*, *safety for large models and agents*, *high-impact applications*, and *open, reproducible systems*.

1. Reliable AI Foundations: Detecting the Unexpected

I develop fundamental algorithms and benchmarks for detecting rare, unseen, or abnormal patterns across modalities. This line unifies anomaly detection, out-of-distribution (OOD) detection, and automated model selection to ensure that AI systems remain predictable under uncertainty.

- ❏ Anomaly & OOD Detection
- ❏ Automated Model Selection
- ❏ Robust Learning
- ❏ Benchmarks & Evaluation
- ❏ Multimodal & Graph Settings
- ❏ Data Efficiency

2. Trust & Safety in Large Language Models and Agents

I study how to make large models and agentic systems reliable under real-world conditions, focusing on hallucination mitigation, privacy and security safeguards, jailbreak prevention, model-extraction defenses, and dynamic evaluation of reasoning.

- ❏ LLM Safety & Reliability
- ❏ Hallucination Mitigation
- ❏ Jailbreak Detection
- ❏ Privacy & Model Extraction
- ❏ Trust/Stress Evaluation
- ❏ Routing & Online Control

3. Foundation Models for Science & Society

I apply foundation models and generative AI to high-stakes domains, combining domain knowledge with reliable modeling to support scientific discovery and decision-making.

- ❏ AI for Science
- ❏ Generative/Foundational Models
- ❏ Decision Modeling
- ❏ Climate/Weather & Extreme Events
- ❏ Healthcare & Biomedicine
- ❏ Political & Social Systems

4. Scalable, Automated & Open AI Systems

I create efficient, reproducible ML systems that operationalize the above ideas at scale. Open-source tools include **PyOD** (**30M+** downloads) and related libraries with **20K+** GitHub stars. My work emphasizes distributed inference, automated workflows, and user-centric design to democratize reliable AI.

- ❏ ML Systems & Tooling
- ❏ Automated ML & Workflows
- ❏ Open-source AI
- ❏ Distributed/Agentic Inference
- ❏ Reproducibility & Evaluation
- ❏ Accessibility & Adoption

FULL-TIME
PROFESSIONAL
EXPERIENCE

University of Southern California
Thomas Lord Department of Computer Science
Assistant Professor (Tenure-Track)   Aug. 2023 - Present

- Foundations Of Robust Trustworthy Intelligent Systems (**FORTIS**) Lab: Link
- USC Machine Learning Center (MaSCle): Link

PwC Canada
Consulting & Deals
Senior Consultant (Data Scientist)   Aug. 2017 - Jun. 2019

| Consultant (Data Scientist) | Feb. 2017 - Jul. 2017 |

EDUCATION

Carnegie Mellon University — Pittsburgh, PA
Ph.D. in Information Systems and Management — Sep. 2019 - May. 2023

- **Affiliation**: CMU automated learning systems group (Catalyst) and Data Analytics Techniques Algorithms (DATA) Lab
- **Advisors and Mentors**: CMU: Prof. Leman Akoglu, Prof. Zhihao Jia, and Prof. George Chen. I collaborate with Prof. Jure Leskovec at Stanford, and Prof. Philip S. Yu at UIC.

University of Toronto — Toronto, ON
Master of Science in Computer Science — Sep. 2015 - Dec. 2016

University of Cincinnati — Cincinnati, OH
Bachelor of Science in Computer Engineering — Sep. 2010 - May. 2015
Minor: *Computer Science* and *Mathematics*

🏅 AWARDS, GRANTS, AND FUNDING

As Principal Investigator (August 2023 onwards)

NSF POSE I	*Funding*	Aug. 2025
Capital One Research Awards	*Grant*	Oct. 2024
Amazon Research Awards	*Gift*	Aug. 2024
Best Paper Award @ KDD Resource-Efficient Learning Workshop	*Recognition*	Aug. 2024
NSF ATD	*Funding*	Aug. 2024
NSF POSE II	*Funding*	Jun. 2024
Google Cloud Research Innovators	*Recognition*	Mar. 2024
AAAI New Faculty Highlights	*Recognition*	Feb. 2024
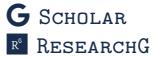
*Note: Monetary values represent **my portion** of the funding. Total project budgets may be larger.*

Prior to Principal Investigator Role (Before August 2023)

Meta 2022 AI4AI Research Award (student co-PI)	*Recognition*	Oct. 2022
The Norton Labs Graduate Fellowship	*Fellowship*	Mar. 2022
CMU Presidential Fellowship	*Fellowship*	2019
Mitacs-Accelerate Research and Development Funding	*Funding*	2016-2017
University Global Award and Scholarship	*Scholarship*	2010-2015
Mantei/Mae Award & Scholar	*Award*	2012-2015
Engineer of the Month	*Recognition*	Jun. 2014

Note: Monetary values are omitted for awards and recognitions received prior to PI role.

PUBLICATIONS
G SCHOLAR
R² RESEARCHG

Preprints & Under Submission

Note: *first authors and †corresponding authors if more than one.

82. Yuexing Hao, Yue Huang, Haoran Zhang, Chenyang Zhao, Zhenwen Liang, Paul Pu Liang, <u>Yue Zhao</u>, Lichao Sun, Saleh Kalantari, Xiangliang Zhang, Marzyeh Ghassemi
The Role of Computing Resources in Publishing Foundation Model Research
Under submission
arXiv preprint arXiv:2510.13621

81. Wang Wei, Tiankai Yang, Hongjie Chen, <u>Yue Zhao</u>, Franck Dernoncourt, Ryan A. Rossi, Hoda Eldardiry
Learning to Route LLMs from Bandit Feedback: One Policy, Many Trade-offs
Under submission
arXiv preprint arXiv:2510.07429

80. Langzhou He, Junyou Zhu, Fangxin Wang, Junhua Liu, Haoyan Xu, <u>Yue Zhao</u>, Philip S. Yu, Qitian Wu
Can Molecular Foundation Models Know What They Don't Know? A Simple Remedy with Preference Optimization

Under submission
arXiv preprint arXiv:2509.25509

79. Yuehan Qin, Li Li, Defu Cao, Tiankai Yang, <u>Yue Zhao</u>
M3OOD: Automatic Selection of Multimodal OOD Detectors
Under submission
arXiv preprint arXiv:2508.11936

78. Yuangang Li, Yiqing Shen, Yi Nian, Jiechao Gao, Ziyi Wang, Chenxiao Yu, Shawn Li, Jie Wang, Xiyang Hu, <u>Yue Zhao</u>
Mitigating Hallucinations in Large Language Models via Causal Reasoning
Under submission
arXiv preprint arXiv:2508.12495

77. Bolin Shen, Eren Erman Ozguven, <u>Yue Zhao</u>, Guang Wang, Yiqun Xie, Yushun Dong
Learning from the Storm: A Multivariate Machine Learning Approach to Predicting Hurricane-Induced Economic Losses
Under submission
arXiv preprint arXiv:2506.17964

76. Li Li, Peilin Cai, Ryan A. Rossi, Franck Dernoncourt, Branislav Kveton, Junda Wu, Tong Yu, Lixin Song, Tiankai Yang, Yuehan Qin, Nesreen K. Ahmed, Samyadeep Basu, Subhojyoti Mukherjee, Ruiyi Zhang, Yuxiao Zhou, Zichao Wang, Yue Huang, Yu Wang, Xiangliang Zhang, Philip S. Yu, Xiyang Hu, <u>Yue Zhao</u>
A Personalized Conversational Benchmark: Towards Simulating Personalized Conversations
Under submission
arXiv preprint arXiv:2505.14106

75. Zixiang Xu, Yanbo Wang, Yue Huang, Jiayi Ye, Haomin Zhuang, Zirui Song, Lang Gao, Chenxi Wang, Zhaorun Chen, Yujun Zhou, Sixian Li, Wang Pan, <u>Yue Zhao</u>, Jieyu Zhao, Xiangliang Zhang, Xiuying Chen
SocialMaze: A Benchmark for Evaluating Social Reasoning in Large Language Models
Under submission
arXiv preprint arXiv:2505.23713

74. Haoyan Xu, Zhengtao Yao, Xuzhi Zhang, Ziyi Wang, Langzhou He, Yushun Dong, Philip S. Yu, Mengyuan Li, <u>Yue Zhao</u>
GLIP-OOD: Zero-Shot Graph OOD Detection with Foundation Model
Under submission
arXiv preprint arXiv:2504.21186

73. Haoyan Xu, Zhengtao Yao, Ziyi Wang, Zhan Cheng, Xiyang Hu, Mengyuan Li, <u>Yue Zhao</u>
Graph Synthetic Out-of-Distribution Exposure with Large Language Models
Under submission
arXiv preprint arXiv:2504.21198

72. Weidi Luo, Qiming Zhang, Tianyu Lu, Xiaogeng Liu, <u>Yue Zhao</u>, Zhen Xiang, Chaowei Xiao
Doxing via the Lens: Revealing Privacy Leakage in Image Geolocation for Agentic Multi-Modal Large Reasoning Model
Under submission
arXiv preprint arXiv:2504.19373

71. Yuehan Qin, Shawn Li, Yi Nian, Xinyan Velocity Yu, <u>Yue Zhao</u>[†], Xuezhe Ma[†]
Don't Let It Hallucinate: Premise Verification via Retrieval-Augmented Logical Reasoning
Under submission
arXiv preprint arXiv:2504.06438

70. Yiming Tang, Yi Fan, Chenxiao Yu, Tiankai Yang, <u>Yue Zhao</u>, Xiang Hu
StealthRank: LLM Ranking Manipulation via Stealthy Prompt Optimization
Under submission
arXiv preprint arXiv:2504.05804

69. Chengxuan Qian, Shuo Xing, Shawn Li, <u>Yue Zhao</u>, Zhengzhong Tu
DecAlign: Hierarchical Cross-Modal Alignment for Decoupled Multimodal Representation Learning
Under submission
arXiv preprint arXiv:2503.11892

68. Xiongxiao Xu, Haoran Wang, Yueqing Liang, Philip S. Yu, <u>Yue Zhao</u>, Kai Shu
Can Multimodal LLMs Perform Time Series Anomaly Detection?
Under submission
arXiv preprint arXiv:2502.17812

67. Kaixiang Zhao, Lincan Li, Kaize Ding, Neil Zhenqiang Gong, <u>Yue Zhao</u>, Yushun Dong
A Survey of Model Extraction Attacks and Defenses in Distributed Computing Environments
Under submission
arXiv preprint arXiv:2502.16065

66. Yue Huang, Chujie Gao, Siyuan Wu, Haoran Wang, Xiangqi Wang, Yujun Zhou, Yanbo Wang, Jiayi Ye, Jiawen Shi, Qihui Zhang, Yuan Li, Han Bao, Zhaoyi Liu, Tianrui Guan, Dongping Chen, Ruoxi Chen, other authors, <u>Yue Zhao</u>, other authors, Xiangliang Zhang
On the Trustworthiness of Generative Foundation Models: Guideline, Assessment, and Perspective
Under submission
arXiv preprint arXiv:2502.14296
https://trustgen.github.io/

65. Shixuan Li, Wei Yang, Peiyu Zhang, Xiongye Xiao, Defu Cao, Yuehan Qin, Xiaole Zhang, <u>Yue Zhao</u>, Paul Bogdan
ClimateLLM: Efficient Weather Forecasting via Frequency-Aware Large Language Models
Under submission
arXiv preprint arXiv:2502.11059

64. Lincan Li, Jiaqi Li, Catherine Chen[†], Fred Gui[†], other collaborators, <u>Yue Zhao</u>[†], Yushun Dong[†]
Political-LLM: Large Language Models in Political Science
Under submission
arXiv preprint arXiv:2412.06864

63. Chenxiao Yu, Jinyi Ye, Yuangang Li, Zhaotian Weng, Zheng Li, Emilio Ferrara, Xiyang Hu[†], <u>Yue Zhao</u>[†]
A Large-Scale Simulation on Large Language Models for Decision-Making in Political Science
Under submission
arXiv preprint arXiv:2412.15291

62. Junda Wu, Hanjia Lyu, Yu Xia, Zhehao Zhang, Joe Barrow, Ishita Kumar, Mehnoosh Mirtahebi, Hongjie Chen, Ryan A. Rossi, Franck Dernoncourt, Tong Yu, Ruiyi Zhang, Jiuxiang Gu, Nesreen K. Ahmed, Yu Wang, Xiang Chen, Hanieh Deilamsalehy, Namyong Park, Sungchul Kim, Huanrui Yang, Subrata Mitra, Zhengmian Hu, Nedim Lipka, <u>Yue Zhao</u>, Jiebo Luo, Julian McAuley
Personalized Multimodal Large Language Models: A Survey
Under submission
arXiv preprint arXiv:2412.02142

61. Han Bao, Yue Huang, Yanbo Wang, Jiayi Ye, Xiangqi Wang, Xiuying Chen, <u>Yue Zhao</u>, Tianyi Zhou, Mohamed Elhoseiny, Xiangliang Zhang
AutoDavis: Automatic and Dynamic Evaluation Protocol of Large Vision-Language Models on Visual Question-Answering?
ICML 2025 DataWorld Workshop
arXiv preprint arXiv:2410.21259

Peer-reviewed Journal Papers

60. Haoyan Xu, Kay Liu, Zhengtao Yao, Philip S. Yu, Kaize Ding[†], <u>Yue Zhao</u>[†]
LEGO-Learn: Label-Efficient Graph Open-Set Learning
*Transactions on Machine Learning Research (**TMLR**)*, 2025

59. Hao Dong, Gaetan Frusque, <u>Yue Zhao</u>, Eleni Chatzi, Olga Fink
NNG-Mix: Improving Semi-supervised Anomaly Detection with Pseudo-anomaly Generation
*IEEE Transactions on Neural Networks and Learning Systems (**TNNLS**)*, 2024

58. Ling Yang*, Zhilong Zhang*, Yang Song, Shenda Hong, Runsheng Xu, <u>Yue Zhao</u>, Wentao Zhang, Bin Cui, Ming-Hsuan Yang
Diffusion Models: A Comprehensive Survey of Methods and Applications
*ACM Computing Surveys (**CSUR**)*, 2023
(*equal contribution)

57. <u>Yue Zhao*</u>, Martin Q. Ma*, Xiaorong Zhang, Leman Akoglu
    The Need for Unsupervised Outlier Model Selection: A Review and Evaluation of Internal Evaluation
    Strategies
    *ACM SIGKDD Explorations Newsletter (**SIGKDD Explor.**)*, 2023
    (*equal contribution)

56. Kexin Huang*, Tianfan Fu*, Wenhao Gao*, <u>Yue Zhao</u>, Yusuf Roohani, Jure Leskovec, Connor W. Coley,
    Cao Xiao, Jimeng Sun, Marinka Zitnik
    Artificial Intelligence Foundation for Therapeutic Science
    *Nature Chemical Biology (**NCHEMB**)*, 2022
    (*equal contribution)

55. <u>Yue Zhao*</u>, Zheng Li*, Xiyang Hu, Nicola Botta, Cezar Ionescu, George H. Chen
    ECOD: Unsupervised Outlier Detection Using Empirical Cumulative Distribution Functions
    *IEEE Transactions on Knowledge and Data Engineering (**TKDE**)*, 2022.
    (*equal contribution)

54. <u>Yue Zhao</u>, Zain Nasrullah, Zheng Li
    PyOD: A Python Toolbox for Scalable Outlier Detection
    *Journal of Machine Learning Research (**JMLR**)*, 2019.

Conference & Workshop Papers

53. Tiankai Yang, Junjun Liu, Wingchun Siu, Jiahang Wang, Zhuangzhuang Qian, Chanjuan Song, Cheng
    Cheng, Xiyang Hu, <u>Yue Zhao</u>
    AD-AGENT: A Multi-agent Framework for End-to-end Anomaly Detection
    Findings** of the Association for Computational Linguistics: **IJCNLP-AACL, 2025.

52. Ruosi Shao, Md Shamim Seraj, Kangyi Zhao, Yingtao Luo, Lincan Li, Bolin Shen, Averi Bates, Yue
    Zhao, Chongle Pan, Lisa Hightow-Weidman, Shayok Chakraborty, Yushun Dong
    LLM-Empowered Patient-Provider Communication: A Data-Centric Survey From a Clinical Perspective
    Findings** of the Association for Computational Linguistics: **IJCNLP-AACL, 2025.

51. Yanbo Wang, Zixiang Xu, Yue Huang, Xiangqi Wang, Zirui Song, Lang Gao, Chenxi Wang, Xiangru
    Tang, <u>Yue Zhao</u>, Arman Cohan, Xiangliang Zhang, Xiuying Chen
    DyFlow: Dynamic Workflow Framework for Agentic Reasoning
    *Advances in Neural Information Processing Systems (**NeurIPS**)*, 2025

50. Shawn Li, Jiashu Qu, Yuxiao Zhou, Yuehan Qin, Tiankai Yang, <u>Yue Zhao</u>
    Treble Counterfactual VLMs: A Causal Approach to Hallucination
    Findings** of the Association for Computational Linguistics: **EMNLP, 2025.

49. Yuangang Li, Jiaqi Li, Zhuo Xiao, Tiankai Yang, Yi Nian, Xiyang Hu, <u>Yue Zhao</u>
    NLP-ADBench: NLP Anomaly Detection Benchmark
    Findings** of the Association for Computational Linguistics: **EMNLP, 2025.

48. Lincan Li, Eren Erman Ozguven, <u>Yue Zhao</u>, Guang Wang, Yiqun Xie, Yushun Dong
    TyphoFormer: Language-Augmented Transformer for Accurate Typhoon Track Forecasting
    *ACM International Conference on Advances in Geographic Information Systems (**SIGSPATIAL**)*,
    2025.

47. Yi Nian*, Shenzhe Zhu*, Yuehan Qin, Shawn Li, Ziyi Wang, Chaowei Xiao, <u>Yue Zhao</u>
    JailDAM: Jailbreak Detection with Adaptive Memory for Vision-Language Model
    *Conference on Language Modeling (**COLM**)*, 2025.

46. Shawn Li, Peilin Cai, Yuxiao Zhou, Zhiyu Ni, Renjie Liang, You Qin, Yi Nian, Zhengzhong Tu, Xiyang
    Hu, <u>Yue Zhao</u>
    Secure On-Device Video OOD Detection Without Backpropagation
    *International Conference on Computer Vision (**ICCV**)*, 2025.

45. Zerui Xu, Fang Wu, <u>Yue Zhao</u>
    Retrieval-Reasoning Large Language Model-based Synthetic Clinical Trial Generation
    *ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (**KDD Workshop
    on AI Agent for Information Retrieval**)*, 2025.
    *ACM Conference on Bioinformatics, Computational Biology, and Health Informatics (**ACM BCB**,
    2025.

44. Haoyan Xu*, Zhengtao Yao*, Yushun Dong, Ziyi Wang, Ryan A. Rossi, Mengyuan Li, <u>Yue Zhao</u>
Few-Shot Graph Out-of-Distribution Detection with LLMs
*European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases (**ECML PKDD**)*, 2025.

43. Tiankai Yang*, Yi Nian*, Shawn Li, Ruiyao Xu, Yuangang Li, Jiaqi Li, Xiyang Hu, Ryan Rossi, Kaize Ding, Xia Hu, <u>Yue Zhao</u>
AD-LLM: Benchmarking Large Language Models for Anomaly Detection
*Findings of the Association for Computational Linguistics (**ACL** Findings)*, 2025.

42. Yu Xia, Subhojyoti Mukherjee, Zhouhang Xie, Junda Wu, Xintong Li, Ryan Aponte, Hanjia Lyu, Joe Barrow, Hongjie Chen, Franck Dernoncourt, Branislav Kveton, Tong Yu, Ruiyi Zhang, Jiuxiang Gu, Nesreen K. Ahmed, Yu Wang, Xiang Chen, Hanieh Deilamsalehy, Sungchul Kim, Zhengmian Hu, <u>Yue Zhao</u>, Nedim Lipka, Seunghyun Yoon, Ting-Hao Kenneth Huang, Zichao Wang, Puneet Mathur, Soumyabrata Pal, Koyel Mukherjee, Zhehao Zhang, Namyong Park, Thien Huu Nguyen, Jiebo Luo, Ryan A. Rossi, Julian McAuley
From Selection to Generation: A Survey of LLM-based Active Learning
*Annual Meeting of the Association for Computational Linguistics (**ACL**)*, 2025.

41. Kaixiang Zhao, Lincan Li, Kaize Ding, Neil Zhenqiang Gong, <u>Yue Zhao</u>, Yushun Dong
A Survey on Model Extraction Attacks and Defenses for Large Language Models
*ACM SIGKDD Conference on Knowledge Discovery and Data Mining (**KDD** Lecture-Style Tutorial Track)*, 2025.

40. Shawn Li, Huixian Gong, Hao Dong, Tiankai Yang, Zhengzhong Tu, <u>Yue Zhao</u>
DPU: Dynamic Prototype Updating for Multimodal Out-of-Distribution Detection
*Conference on Computer Vision and Pattern Recognition (**CVPR**)*, ♀ **Highlight**, 2025

39. Hanhui Wang, Yihua Zhang, Ruizheng Bai, <u>Yue Zhao</u>, Sijia Liu, Zhengzhong Tu
Edit Away and My Face Will Not Stay: Personal Biometric Defense against Malicious Generative Editing
*Conference on Computer Vision and Pattern Recognition (**CVPR**)*, 2025

38. Yanbo Wang, Jiayi Ye, Siyuan Wu, Chujie Gao, Yue Huang, Xiuying Chen, <u>Yue Zhao</u>, Xiangliang Zhang
TRUSTEVAL: A Dynamic Evaluation Toolkit on Trustworthiness of Generative Foundation Models
*Annual Conference of the North American Chapter of the Association for Computational Linguistics (**NAACL** Demo Track)*, 2025.

37. Yuehan Qin*, Yichi Zhang*, Yi Nian*, Xueying Ding, <u>Yue Zhao</u>
MetaOOD: Meta-learning for Automatic Out-of-Distribution Detection Model Selection
*International Conference on Learning Representations (**ICLR**)*, 2025
*ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (**KDD Workshop** on Resource-Efficient Learning for Knowledge Discovery)*, 2024. ♀ Best Paper Award.

36. Sihan Chen, Zhuangzhuang Qian, Wingchun Siu, Xingcan Hu, Jiaqi Li, Shawn Li, Yuehan Qin, Tiankai Yang, Zhuo Xiao, Wanghao Ye, Yichi Zhang, Yushun Dong, <u>Yue Zhao</u>
PyOD 2: A Python Library for Outlier Detection with LLM-powered Model Selection
*International World Wide Web Conference (**The Web Conference** Demo Track)*, 2025

35. Sizhe Liu, Yizhou Lu, Siyu Chen, Xiyang Hu, Tianfan Fu, <u>Yue Zhao</u>
DrugAgent: Automating AI-aided Drug Discovery Programming through LLM Multi-Agent Collaboration
***AAAI Workshop** on Foundation Models for Biological Discoveries (**FMs4Bio**)*, 2025.

34. Hao Dong, <u>Yue Zhao</u>, Eleni Chatzi, Olga Fink
MultiOOD: Scaling Out-of-Distribution Detection for Multiple Modalities
*Advances in Neural Information Processing Systems (**NeurIPS**)*, ♀ **Spotlight**, 2024

33. Xueying Ding, <u>Yue Zhao</u>, Leman Akoglu
Fast Unsupervised Deep Outlier Model Selection with Hypernetworks
*ACM SIGKDD Conference on Knowledge Discovery and Data Mining (**KDD**), 2024*

32. Lichao Sun, Yue Huang, Haoran Wang, Siyuan Wu, Qihui Zhang, Chujie Gao, Yixin Huang, Wenhan Lyu, Yixuan Zhang, Xiner Li, Zhengliang Liu, Yixin Liu, Yijue Wang, Zhikun Zhang, 50+ collaborative authors, <u>Yue Zhao</u>
TrustLLM: Trustworthiness in Large Language Models
*International Conference on Machine Learning (**ICML**)*, 2024

31. Songtao Liu, Hanjun Dai, <u>Yue Zhao</u>, Peng Liu
    Preference Optimization for Molecule Synthesis with Conditional Residual Energy-based Models
    *International Conference on Machine Learning (**ICML**)*, **Oral**, 2024

30. <u>Yue Zhao</u>, Leman Akoglu
    Hyperparameter Optimization for Unsupervised Outlier Detection
    *International Conference on Automated Machine Learning (**AutoML**)*, 2024

29. <u>Yue Zhao</u>
    Towards Reproducible, Automated, and Scalable Anomaly Detection
    *AAAI Conference on Artificial Intelligence (**AAAI**), New Faculty Highlights*, 2024

28. Minqi Jiang*, Chaochuan Hou*, Ao Zheng*, Songqiao Han, Hailiang Huang[†], Qingsong Wen, Xiyang Hu[†], <u>Yue Zhao</u>[†]
    ADGym: Design Choices for Deep Anomaly Detection.
    *Advances in Neural Information Processing Systems (**NeurIPS**)*, 2023
    ([†]Corresponding author)

27. Jaemin Yoo, <u>Yue Zhao</u>, Lingxiao Zhao, Leman Akoglu
    DSV: An Alignment Validation Loss for Self-supervised Outlier Model Selection
    *European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases (**ECML/PKDD**)*, 2023

26. Peng Xu, Lin Zhang, Xuanzhou Liu, Jiaqi Sun, <u>Yue Zhao</u>, Haiqin Yang, Bei Yu
    Do Not Train It: A Linear Neural Architecture Search of Graph Neural Networks
    *International Conference on Machine Learning (**ICML**)*, 2023

25. <u>Yue Zhao</u>, Guoqing Zheng, Subhabrata Mukherjee, Robert McCann, Ahmed Awadallah
    ADMoE: Anomaly Detection with Mixture-of-Experts from Noisy Labels
    *Thirty-Seventh AAAI Conference on Artificial Intelligence (**AAAI**)*, 2023

24. <u>Yue Zhao</u>, George H. Chen, Zhihao Jia
    TOD: GPU-accelerated Outlier Detection via Tensor Operations
    *International Conference on Very Large Data Bases (**VLDB**)*, 2023

23. Songqiao Han*, Xiyang Hu*, Hailiang Huang*, Minqi Jiang*, <u>Yue Zhao</u>*
    ADBench: Anomaly Detection Benchmark
    *Advances in Neural Information Processing Systems (**NeurIPS**)*, 2022
    (*equal contribution & the corresponding author)

22. <u>Yue Zhao</u>*, Kay Liu*, Yingtong Dou*, et al.
    Benchmarking Node Outlier Detection on Graphs
    *Advances in Neural Information Processing Systems (**NeurIPS**)*, 2022
    (*equal contribution)

21. <u>Yue Zhao</u>, Xiaorong Zhang, Leman Akoglu
    ELECT: Toward Unsupervised Outlier Model Selection
    *IEEE International Conference on Data Mining (**ICDM**)*, 2022.

20. Zhiming Xu, Xiao Huang, <u>Yue Zhao</u>, Yushun Dong, Jundong Li
    Contrastive Attributed Network Anomaly Detection with Data Augmentation
    *Pacific-Asia Conference on Knowledge Discovery and Data Mining (**PAKDD**)*, 2022.

19. <u>Yue Zhao</u>, Ryan A. Rossi, Leman Akoglu
    Automatic Unsupervised Outlier Model Selection
    *Advances in Neural Information Processing Systems (**NeurIPS**)*, 2021.

18. Kwei-Herng Lai, Daochen Zha, Junjie Xu, <u>Yue Zhao</u>, Guanchu Wang, Xia Hu
    Revisiting Time Series Outlier Detection: Definitions and Benchmarks
    *Advances in Neural Information Processing Systems (**NeurIPS**)*, 2021

17. Kexin Huang*, Tianfan Fu*, Wenhao Gao*, <u>Yue Zhao</u>, Yusuf Roohani, Jure Leskovec, Connor W. Coley, Cao Xiao, Jimeng Sun, Marinka Zitnik
    Therapeutics Data Commons: Machine Learning Datasets and Tasks for Drug Discovery and Development
    *Advances in Neural Information Processing Systems (**NeurIPS**)*, 2021
    (*equal contribution)

16. <u>Yue Zhao</u>*, Xiyang Hu*, Cheng Cheng, Cong Wang, Changlin Wan, Wen Wang, Jianing Yang, Haoping Bai, Zheng Li, Cao Xiao, Yunlong Wang, Zhi Qiao, Jimeng Sun, Leman Akoglu

SUOD: Accelerating Large-scale Unsupervised Heterogeneous Outlier Detection
Conference on Machine and Learning Systems (MLSys), 2021. (*equal contribution)

15. Kwei-Herng Lai*, Daochen Zha*, Guanchu Wang, Junjie Xu, <u>Yue Zhao</u>, Devesh Kumar, Yile Chen, Purav Zumkhawaka, Minyang Wan, Diego Martinez and Xia Ben Hu
TODS: An Automated Time Series Outlier Detection System (Demo paper)
Thirty-Fifth AAAI Conference on Artificial Intelligence (AAAI), 2021.
(*equal contribution)

14. Meng-Chieh Lee, <u>Yue Zhao</u>, Aluna Wang, Pierre Jinghong Liang, Leman Akoglu, Vincent S. Tseng, Christos Faloutsos
AutoAudit: Mining Accounting and Time-Evolving Graphs
IEEE International Conference on Big Data (Big Data), 2020

13. Changlin Wan, Dongya Jia, <u>Yue Zhao</u>, Wennan Chang, Sha Cao, Xiao Wang, and Chi Zhang
A Data Denoising Approach to Optimize Functional Clustering of Single Cell RNA-sequencing Data
IEEE International Conference on Bioinformatics and Biomedicine (BIBM), 2020

12. <u>Yue Zhao</u>, Xueying Ding, Jianing Yang, Haoping Bai.
SUOD: Toward Scalable Unsupervised Outlier Detection
***Workshops** at the Thirty-Fourth **AAAI** Conference on Artificial Intelligence*, 2020.
Extended version published in *MLSys 2021*.

11. Zheng Li, <u>Yue Zhao</u>, Nicola Botta, Cezar Ionescu, Xiyang Hu
COPOD: Copula-Based Outlier Detection
IEEE International Conference on Data Mining (ICDM), 2020.

10. Zheng Li, <u>Yue Zhao</u>, Jialin Fu
SYNC: A Copula based Framework for Generating Synthetic Data from Aggregated Sources
IEEE International Conference on Data Mining Workshops (ICDMW), 2020.

9. Yiqun Mei, <u>Yue Zhao</u>, Wei Liang
DSR: An Accurate Single Image Super Resolution Approach for Various Degradations
IEEE International Conference on Multimedia and Expo (ICME), 2020, London, UK.

8. <u>Yue Zhao</u>, Xuejian Wang*, Cheng Cheng*, Xueying Ding*
Combining Machine Learning Models and Scores using combo Library (Demo paper)
Thirty-Fourth AAAI Conference on Artificial Intelligence (AAAI), 2020.
(*equal contribution)

7. Colin Wan, Zheng Li, Alicia Guo, <u>Yue Zhao</u>
SynC: A Unified Framework for Generating Synthetic Population with Gaussian Copula
***Workshops** at the Thirty-Fourth **AAAI** Conference on Artificial Intelligence*, 2020.
Extended version published in *ICDMW 2020*.

6. Zain Nasrullah, <u>Yue Zhao</u>
Music Artist Classification with Convolutional Recurrent Neural Networks
IEEE International Joint Conference on Neural Networks (IJCNN), 2019, Hungary.

5. <u>Yue Zhao</u>, Zain Nasrullah, Maciej K. Hryniewicki, Zheng Li
LSCP: Locally Selective Combination in Parallel Outlier Ensembles
SIAM International Conference on Data Mining (SDM), 2019, Calgary, Canada.

4. <u>Yue Zhao</u>, Maciej K. Hryniewicki
DCSO: Dynamic Combination of Detector Scores for Outlier Ensembles
*ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (**KDD Workshop on Outlier Detection De-constructed**)*, 2018, London, UK.
Extended version published in *SDM 2019*, renamed to LSCP.

3. <u>Yue Zhao</u>, Maciej K. Hryniewicki
XGBOD: Improving Supervised Outlier Detection with Unsupervised Representation Learning
IEEE International Joint Conference on Neural Networks (IJCNN), 2018, Rio, Brazil.

2. <u>Yue Zhao</u>, Maciej K. Hryniewicki, Francesca Cheng, Boyang Fu, Xiaoyu Zhu
Employee Turnover Prediction with Machine Learning: A Reliable Approach
Intelligent System Conference (Intellisys), 2018, London, UK.

1. <u>Yue Zhao</u>*, Zhongtian Qiu*, Yiqing Yang*, Weiwei Li*, Mingming Fan
An Empirical Study of Touch-based Authentication Methods on Smartwatches
ACM International Symposium on Wearable Computers (ISWC), 2017, Maui, USA. (*equal contribution)

INTERNSHIP EXPERIENCE	**NortonLifeLock Research Group** Machine Learning Research Intern	2022

NortonLifeLock Research Group
Machine Learning Research Intern — 2022

Microsoft Research
Machine Learning Research Intern — 2022

Stanford University, Computer Science Department
Visiting Student Researcher (Prof. Jure Leskovec) — 2021

IQVIA, Analytics Center of Excellence
Machine Learning Research Intern — 2020

Siemens PLM Software USA
Software Engineer (Intern & Contract) — Mar. 2012 - Dec. 2014

TEACHING EXPERIENCE

University of Southern California — Los Angeles, CA
Instructor — Fall 2026 (scheduled)
  CSCI 566 Deep Learning and Its Applications
Instructor — Spring 2026 (scheduled)
  CSCI 699 Adversarial and Trustworthy Foundation Models
Instructor — Spring 2025
  CSCI 566 Deep Learning and Its Applications
Instructor — Spring 2024
  CSCI 566 Deep Learning and Its Applications

Carnegie Mellon University — Pittsburgh, PA
Teaching Assistant — Fall 2022
  Managing Digital Business (Prof. David Riel)

Teaching Assistant & co-Instructor (lectures on AutoML and MLSys) — Spring 2022 – Fall 2020
  Intro to Artificial Intelligence (Prof. David Steier)

Teaching Assistant — Spring 2022
  Digital Transformation (Prof. David Riel)

Teaching Assistant (helping on course topics) — Fall 2021
  Statistics for IT Managers (Prof. Daniel Nagin)

University of Toronto — Toronto, ON
Teaching Assistant & Lab Session Instructor — Fall 2015
  Embedded Systems (Prof. Philip Anderson)

University of Cincinnati — Cincinnati, OH
Teaching Assistant & Lab Session Instructor — Fall 2014
  Intro to Programming (Prof. George Purdy)

PH.D. STUDENTS

- Haoyan Xu (USC, ECE Ph.D., 2024 Spring-), co-advised by Mengyuan Li, ⚲ Capital One Fellowship
- Yuehan Qin (USC, CS Ph.D., 2024 Fall-)
- Tiankai Yang (USC, CS Ph.D., 2024 Fall-)
- Shawn Li (USC, CS Ph.D., 2024 Fall-), ⚲ Capital One Fellowship, Amazon ML Fellowship
- Jiate Li (USC, CS Ph.D., 2025 Fall-)

SERVICES

Conference/Workshop Organizing Committee

- Workflow Co-Chair for KDD 2023
- Co-organizer, AI for Financial Fraud Detection & Prevention Workshop @ 6th ACM International Conference on AI in Finance

External Reviewer for Funding Proposals

- Dutch Research Council (NWO)

Journal Editor

- Associate Editor, ACM Transactions on AI for Science (TAIS), 2025–present
- Associate Editor, IEEE Transactions on Neural Networks and Learning Systems (TNNLS), 2024–present
- Action Editor, Journal of Data-centric Machine Learning Research (DMLR), 2024–present

Program Committee (PC) or Area Chair (AC) for Conferences and Workshops

- ICLR 2025 (AC), ICLR 2026 (AC)
- AAAI 2021, 2022, 2023, 2025 (Senior PC), 2026 (Senior PC)
- ICML 2024, 2025 (AC)
- NeurIPS 2021, 2022, 2023, 2025 (AC)
- AISTATS 2024, 2025 (AC)
- MLSys 2024, 2026
- KDD 2020, 2021, 2022, 2023
- IJCAI 2022, 2023
- AAAI Demonstrations 2021, 2022
- MICCAI 2020, 2021, 2022
- ICDM 2020
- KDD Workshop on Outlier Detection and Description (ODD), 2021
- KDD Workshop on Anomaly and Novelty Detection (ANDEA), 2021, 2022
- IJCAI Workshop on Artificial Intelligence for Anomalies and Novelties (AI4AN), 2020, 2021
- INFORMS Workshop on Data Science 2021

Journal Reviewer

- Journal of Machine Learning Research (JMLR)
- PNAS Nexus
- Machine Learning
- IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)
- IEEE Transactions on Knowledge and Data Engineering (TKDE)
- IEEE Internet of Things Journal (IoT-J)
- IEEE Intelligent Systems
- IEEE Journal on Selected Areas in Communications (J-SAC)
- Data Mining and Knowledge Discovery (DMAI)
- ACM Transactions on Management Information Systems (TMIS)
- Knowledge and Information Systems (KAIS)
- INFORMS Journal on Computing (IJOC)
- Big Data
- Artificial Intelligence Review (AIRE)
- Neurocomputing
- IEEE Transactions on Systems, Man, and Cybernetics: Systems
- IEEE/ACM Transactions on Computational Biology and Bioinformatics (TCBB)
- IEEE Network Magazine
- IEEE Computational Intelligence Magazine (CIM)
- BioData Mining
- European Journal of Management and Business Economics (EJMBE)
- The Journal of Open Source Software (JOSS)

TALKS AND LECTURES	USC symposium on Frontiers of ML/AI	*Towards Robust Al: Advances in Outlier and OOD Detection*	Mar. 2025
	NUS Tea Talk	*Towards Robust Al: Advances in Outlier and OOD Detection*	Jan. 2025
	SFU@NeurIPS'24	*Towards Robust Al: Advances in Outlier and OOD Detection*	Dec. 2024
	KAIST	*Unsupervised Model Selection: Automation with Meta-learning and LLMs*	Nov. 2024
	Kennesaw State University	*Unsupervised Model Selection: Automation with Meta-learning and LLMs*	Oct. 2024
	LinkedIn Anti-Abuse AI	*Outlier Detection: Automation, Systems, and GenAI*	Aug. 2024
	Amazon Security AI	*Outlier Detection: Automation, Systems, and GenAI*	Aug. 2024
	New York University	*Outlier Detection: Automation, Systems, and GenAI*	Aug. 2024
	University of Washington	*Outlier Detection: Automation, Systems, and GenAI*	Jun. 2024
	Microsoft	*Outlier Detection: Automation, Systems, and GenAI*	Jun. 2024
	USC Retreat on AI and Engineering Safety	*Safety Measures for LLMs*	Apr. 2024
	Visa Research	*Towards Reproducible, Automated, and Scalable AD*	Apr. 2024
	USC Symposium on Frontiers of Generative AI	*Generative AI for Anomaly Detection*	Mar. 2024
	AAAI New Faculty Highlights (invited)	*Towards Reproducible, Automated, and Scalable AD*	Feb. 2024
	U of Nevada, Las Vegas	*Automated and Scalable ML Algorithms and Systems*	Oct. 2023
	Samsung Seminar	*Automated and Scalable Anomaly Detection Systems*	Aug. 2023
	KDD SoCal Day	*Enable Applications by ML with Noisy Inputs*	Aug. 2023
	CMU Catalyst	*How (Not) to Fail Your Academic Job Search*	May. 2023
	KAUST	*Automated and Scalable ML Algorithms and Systems*	Apr. 2023
	Emory University	*Automated and Scalable ML Algorithms and Systems*	Apr. 2023
	USC	*Automated and Scalable ML Algorithms and Systems*	Mar. 2023
	UC Davis	*Automated and Scalable ML Algorithms and Systems*	Mar. 2023
	Stony Brook University	*Automated and Scalable ML Algorithms and Systems*	Feb. 2023
	University of Chicago	*Automated and Scalable ML Algorithms and Systems*	Feb. 2023
	UC Merced	*Automated and Scalable ML Algorithms and Systems*	Feb. 2023
	CMU PDL Meeting	*Automated and Scalable ML Algorithms and Systems*	Jan. 2023
	CMU Data Science Seminar	**Guest Lecture** *Automated Anomaly Detection*	Nov. 2022
	LoG Seminar	*Large-scale Graph Anomaly Detection*	Oct. 2022
	Intuit	*Anomaly Detection for Financial Risk Modeling*	Aug. 2022
	Rice University	*Large-scale Anomaly Detection with Automation*	Sep. 2022
	Microsoft Research	*Weakly-supervised Anomaly Detection*	Sep. 2022
	Wells Fargo	*Anomaly Detection for Financial Risk Modeling*	Aug. 2022
	Columbia University	**Guest Lecture** *Anomaly Detection*	Jul. 2022
	Morgan Stanley	*Automated Outlier Detection*	Jun. 2022
	Microsoft Research	*Automated Outlier Detection*	Jun. 2022
	Morgan Stanley	*Large-scale Anomaly Detection Systems*	Mar. 2022
	Rutgers Business School	*Outlier Model Selection*	Mar. 2022
	Tesla	*Large-scale Anomaly Detection Systems*	Feb. 2022
	Catalyst, CMU	*Systems for Data Mining Algorithms*	Dec. 2021
	E&Y Canada	*ML applications in Data Analytics*	Oct. 2021
	University of Nottingham	*General Machine Learning Applications*	Jan. 2021