Xinwen (Ellen) Zhang

Postdoctoral Associate at University of Maryland, College Park

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ACADEMIC APPOINTMENTS

Postdoctoral Associate 2026 – Present
University of Maryland, College Park, Institute for Advanced Computer Studies (UMIACS)
Advisor: Dr. Heng Huang

EDUCATION

Ph.D. in Computer and Information Science 2022 – 2026
Temple University
Advisor: Dr. Hongchang Gao

B.S. in Mathematics 2017 – 2021
Tongji University

RESEARCH INTERESTS

Efficient Algorithms for Large-Scale Machine Learning with a special focus on Algorithms for Compositional AUC Maximization, Learning Beyond Minimization, and Efficient Training for Large Language Models.

HONORS AND AWARDS

- Outstanding Graduate Research Assistant Award, Temple University 2026
- ICML Financial Aid Award 2026
- ICML Gold Reviewer 2026
- Female Student Award in Data Science, IEEE International Conference on Data Mining 2025
- ICDM Student Travel Award 2025
- ICML Travel Award 2024
- WiML Travel Funding 2023
- NeurIPS Scholar Award 2023
- KDD Student Travel Award 2023
- Second Prize, Shanghai Mathematical Model Competition 2018
- Academic Scholarships, Three Consecutive Years at Tongji University 2017–2021

PUBLICATIONS

[**NeurIPS'26**] **Xinwen Zhang**, Yihan Zhang, Heng Liang, Hongchang Gao. "Nonconvex Decentralized Stochastic Bilevel Optimization under Heavy-Tailed Noise." *In Advances in Neural Information Processing Systems 39, 2026.*

[**NeurIPS'26**] **Xinwen Zhang**, Chiu C. Tan, Haibin Ling, Hongchang Gao. "A Doubly Smoothed Decentralized Stochastic Minimax Optimization Algorithm." *In Advances in Neural Information Processing Systems 39, 2026.*

[**ICML'26**] **Xinwen Zhang**, Richard Souvenir, Hongchang Gao. "LS^{2}MC-GDA: A Smoothed Algorithm for Federated Stochastic Multi-level Compositional Minimax Optimization." *In Proceedings of the 43rd International*

Conference on Machine Learning, 2026.

[**ICML'26**] **Xinwen Zhang**, Yihan Zhang, Hongchang Gao, Heng Huang. "Distributed Stochastic K-Level Optimization Over Networks." *In Proceedings of the 43rd International Conference on Machine Learning, 2026.*

[**ICML'26**] Yihan Zhang, **Xinwen Zhang**, My T. Thai, Jie Wu, Hongchang Gao. "Convergence Analysis of Decentralized Hessian-/Jacobian-Free Algorithm for Nonconvex Stochastic Bilevel Optimization." *In Proceedings of the 43rd International Conference on Machine Learning, 2026.*

[**ICDM'26**] **Xinwen Zhang**, Liang Zhan, Hongchang Gao. "Faster Federated Smoothed Minimax Optimization." *In IEEE International Conference on Data Mining, 2026.*

[**ICDM'25**] **Xinwen Zhang**, Hongchang Gao. "Sharpness-Aware Optimization Through Variance Suppression on Deep AUC Maximization." *In IEEE International Conference on Data Mining, 2025.*

[**NeurIPS'25**] **Xinwen Zhang**, Hongchang Gao. "On the Convergence of Stochastic Smoothed Multi-Level Compositional Gradient Descent Ascent." *In Advances in Neural Information Processing Systems 38, 2025.*

[**ICML'24**] **Xinwen Zhang**, Ali Payani, Myungjin Lee, Richard Souvenir, Hongchang Gao. "A Federated Stochastic Multi-Level Compositional Minimax Algorithm for Deep AUC Maximization." *In Proceedings of the 41st International Conference on Machine Learning, 2024.*

[**NeurIPS'23**] **Xinwen Zhang**, Yihan Zhang, Tianbao Yang, Richard Souvenir, Hongchang Gao. "Federated Compositional Deep AUC Maximization." *In Advances in Neural Information Processing Systems 36, 2023.*

[**ToN'26**] Jiyao Liu, **Xinwen Zhang**, Xinliang Wei, Xuanzhang Liu, Yuzhou Chen, Hongchang Gao, Yu Wang. "Swapping and Purification Scheme Optimization for Entanglement Distribution in Quantum Networks." *In IEEE Transactions on Networking, 2026.*

[**IWQoS'25**] Jiyao Liu, **Xinwen Zhang**, Xinliang Wei, Xuanzhang Liu, Yuzhou Chen, Hongchang Gao, Yu Wang. "Joint Swapping and Purification with Failures for Entanglement Distribution in Quantum Networks." *In IEEE/ACM 33rd International Symposium on Quality of Service, 2025.*

Preprints

[**arXiv'25**] **Xinwen Zhang**, Hongchang Gao. "On Provable Benefits of Muon in Federated Learning." *arXiv preprint arXiv:2510.03866.*

[**arXiv'25**] **Xinwen Zhang**, Hongchang Gao. "Federated Stochastic Minimax Optimization under Heavy-Tailed Noises." *arXiv preprint arXiv:2511.04456.*

[**arXiv'26**] **Xinwen Zhang**, Peiran Yu, Zhaosong Lu, Hongchang Gao. "Smoothed Gradient Method for Nonconvex Federated Stochastic Bilevel Optimization." *arXiv preprint arXiv:2610.05290.*

[**arXiv'26**] Heng Liang, **Xinwen Zhang**, Hongchang Gao. "Learning What to Distill: Bilevel Top-K Token Selection for Self-Distillation in Large Language Models." *arXiv preprint arXiv:2610.07247.*

TUTORIALS & WORKSHOPS

[**BigData'26 Ph.D. Forum**] **Xinwen Zhang**. "Distributed Nested Optimization: Algorithms, Theory, and Applications." *In 2026 IEEE International Conference on Big Data, Ph.D. Forum.*

[**ICDM'25 Tutorial**] Hongchang Gao, **Xinwen Zhang**. "Federated Stochastic Compositional and Bilevel Optimization." *In 2025 IEEE International Conference on Data Mining.*

[**IJCAI'25 Tutorial**] Hongchang Gao, **Xinwen Zhang**. "Federated Stochastic Compositional and Bilevel Optimization." *In Proceedings of the 34th International Joint Conference on Artificial Intelligence, 2025.*

[**WiML'23 Workshop**] **Xinwen Zhang**, Richard Souvenir, Hongchang Gao. "A Fast Federated Stochastic Compositional Minimax Optimization Algorithm with Variance Reduction." *In 18th Women in Machine Learning Workshop, 2023.*

[**KDD'23 Tutorial**] Hongchang Gao, **Xinwen Zhang**. "Distributed Optimization for Big Data Analytics: Beyond Minimization." *In Proceedings of the 27th ACM SIGKDD Conference on Knowledge Discovery and Data Mining, 2023.*

WORK EXPERIENCE

Teaching Assistant Aug. 2022 – Dec. 2024
Department of Computer and Information Sciences, Temple University

- CIS3715 Principles of Data Science — Spring 2023, 2024
- CIS1051 Introduction to Problem Solving and Programming in Python — Fall 2022, 2023, 2024, Spring 2023, 2024

Data Analysis Intern Mar. 2021 – Jun. 2021
Zhongyuan Consumer Finance

- Built Python/SQL pipelines and profiling models for credit monitoring and targeted marketing.
- Analyzed festival campaign data, showing cash incentives improved customer retention.

ACADEMIC SERVICES

Conference Reviewer

- AAAI, ICLR, AISTATS — 2027
- AAAI, ICML, NeurIPS, KDD, ICLR, AISTATS, CVPR — 2026
- AAAI, ICML, NeurIPS, KDD, ICLR, AISTATS — 2025
- AAAI, ICML, NeurIPS — 2024

Journal Reviewer

- ACM Transactions on Computing for Healthcare
- Journal of Combinatorial Optimization
- Journal of Optimization Theory and Applications
- Neural Networks
- Transactions on Machine Learning Research