

Mengxiao Zhang

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Research Interest

Designing adaptive machine learning algorithms with strong theoretical guarantees, with a focus on general sequential decision making problems, including bandit problems, game theory and various operational research applications.

Experience

Assistant Professor, Business Analytics at the Tippie College of Business, University of Iowa.

Instructing and developing curriculum for graduate and undergraduate courses; Advising and mentoring Ph.D. students in conducting advanced research. Aug 2024 - Now

Education

Graduate study:

Department of Computer Science, University of Southern California.

Advisor: Haipeng Luo

Aug 2018 - May 2024

Undergraduate study:

Key Laboratory of Machine Perception, MOE, School of EECS, Peking University

Sep 2014 - July 2018

Advisor: Liwei Wang

Apr 2016 - Aug 2018

Bachelor of Science in Machine Intelligence, Peking University.

Bachelor of Science in Mathematics and Applied Mathematics.

Conference Papers

(* indicates alphabetical ordering or equal contribution)

Parameter-free Dynamic Regret: Time-varying Movement Costs, Delayed Feedback, and Memory
*Emmanuel Esposito**, *Andrew Jacobsen**, *Hao Qiu**, **Mengxiao Zhang***, *ICML 2026*

Near-Optimal Regret for Distributed Adversarial Bandits: A Black-Box Approach

*Hao Qiu**, **Mengxiao Zhang***, *Nicolò Cesa-Bianchi*, *COLT 2026*

Decentralized Online Convex Optimization with Unknown Feedback Delays

Hao Qiu, **Mengxiao Zhang**, *Juliette Achddou*, *AAAI 2026*

Comparator-Adaptive Φ -Regret: Improved Bounds, Simpler Algorithms, and Applications to Games

*Soumita Hait**, *Ping Li**, *Haipeng Luo**, **Mengxiao Zhang***, *NeurIPS 2025*, *Spotlight*

Alternating Regret for Online Convex Optimization

*Soumita Hait**, *Ping Li**, *Haipeng Luo**, **Mengxiao Zhang***, *COLT 2025*

Exploiting Curvature in Online Convex Optimization with Delayed Feedback

*Hao Qiu**, *Emmanuel Esposito**, **Mengxiao Zhang***, *ICML 2025*

Contextual Linear Bandits with Delay as Payoff

Mengxiao Zhang, *Yingfei Wang*, *Haipeng Luo*, *ICML 2025*

No-Regret Learning for Fair Multi-Agent Social Welfare Optimization

Mengxiao Zhang, *Ramiro Deo-Campo Vuong*, and *Haipeng Luo*, *NeurIPS 2024*

Provably Efficient Interactive-Grounded Learning with Personalized Reward

Mengxiao Zhang*, *Yuheng Zhang**, *Haipeng Luo*, and *Paul Mineiro*, *NeurIPS 2024*

Contextual Multinomial Logit Bandits with General Value Functions

Mengxiao Zhang, *Haipeng Luo*, *NeurIPS 2024*

Autobidders with Budget and ROI Constraints: Efficiency, Regret, and Pacing Dynamics

*Brendan Lucier**, *Sarath Pattathil**, *Aleksandrs Slivkins**, **Mengxiao Zhang***, *COLT 2024*

Efficient Contextual Bandits with Uninformed Feedback Graphs

Mengxiao Zhang, *Yuheng Zhang*, *Haipeng Luo*, and *Paul Mineiro*, *ICML 2024*

Online Learning in Contextual Second-Price Pay-Per-Click Auctions

Mengxiao Zhang, Haipeng Luo, AISTATS 2024

Practical Contextual Bandits with Feedback Graphs

Mengxiao Zhang, Yuheng Zhang*, Olga Vrousgou, Haipeng Luo, Paul Mineiro, NeurIPS 2023*

Improved High-Probability Regret for Adversarial Bandits with Time-Varying Feedback Graphs

Haipeng Luo, Hanghang Tong*, Mengxiao Zhang*, Yuheng Zhang*, ALT 2023*

No-Regret Learning in Two-Echelon Supply Chain with Unknown Demand Distribution

Mengxiao Zhang, Shi Chen, Haipeng Luo, Yingfei Wang, AISTATS 2023

Corralling a Larger Band of Bandits: A Case Study on Switching Regret for Linear Bandits

Haipeng Luo, Mengxiao Zhang*, Peng Zhao*, Zhi-Hua Zhou*, COLT 2022*

Adaptive Bandit Convex Optimization with Heterogeneous Curvature

Haipeng Luo, Mengxiao Zhang*, Peng Zhao*, COLT 2022*

No-Regret Learning in Time-Varying Zero-Sum Games

Mengxiao Zhang, Peng Zhao*, Haipeng Luo, Zhi-Hua Zhou, ICML 2022*

Last-iterate Convergence of Decentralized Optimistic Gradient Descent/Ascent in Infinite-horizon Competitive Markov Games

Chen-Yu Wei, Chung-Wei Lee, Mengxiao Zhang*, Haipeng Luo, COLT 2021*

Achieving Near Instance-Optimality and Minimax-Optimality in Stochastic and Adversarial Linear Bandits Simultaneously

Chung-Wei Lee, Haipeng Luo*, Chen-Yu Wei*, Mengxiao Zhang*, Xiaojin Zhang*, ICML 2021*

Linear Last-iterate Convergence in Constrained Saddle-point Optimization

Chen-Yu Wei, Chung-Wei Lee, Mengxiao Zhang, Haipeng Luo, ICLR 2021

Bias no more: high-probability data-dependent regret bounds for adversarial bandits and MDPs

Chung-Wei Lee, Haipeng Luo*, Chen-Yu Wei*, Mengxiao Zhang*, NeurIPS 2020, Oral*

A Closer Look at Small-loss Bounds for Bandits with Graph Feedback

Chung-Wei Lee, Haipeng Luo*, Mengxiao Zhang*, COLT 2020*

Workshop Papers

Advancing Query Rewriting in E-Commerce via Shopping Intent Learning

Mengxiao Zhang, Yongning Wu, Raif Rustamov, Hongyu Zhu, Haoran Shi, Yuqi Wu, Lei Tang, Zuohua Zhang, Chu Wang, SIGIR eCom 2022, Spotlight Talk

Preprint

Pricing Query Complexity of Multiplicative Revenue Approximation

Wei Tang, Yifan Wang*, Mengxiao Zhang*, arXiv 2602.10483.*

Interaction-Grounded Learning for Contextual Markov Decision Processes with Personalized Feedback

Mengxiao Zhang, Yuheng Zhang*, Haipeng Luo, Paul Mineiro, arXiv 2602.08307.*

Defective Convolutional Layers Learn Robust CNNs

Tiange Luo, Tianle Cai, Mengxiao Zhang, Siyu Chen, Di He, Liwei Wang, arXiv 1911.08432.

Randomness in Deconvolutional Networks for Visual Representation

Kun He, Jingbo Wang, Haochuan Li, Yao Shu, Mengxiao Zhang, Man Zhu, Liwei Wang, John E. Hopcroft, arxiv 1704.00330.

Working Papers

Alternating Regret for Online Convex Optimization

Soumita Hait, Ping Li*, Haipeng Luo*, Mengxiao Zhang*, minor revision to Journal of Machine Learning Research (JMLR)*

Managing Lost-Sale Inventory Systems under Unknown Demand and Return Distributions
*Boxiao Chen**, *Stefanus Jasin**, *Qi Luo**, **Mengxiao Zhang*** (corresponding author), SSRN 5624311, submitted to *Operations Research (OpRe)*

An LP-Based Approach for Bilinear Saddle Point Problem with Instance-dependent Guarantee and Noisy Feedback
Jiashuo Jiang, **Mengxiao Zhang**, SSRN 5465554, reject and resubmit at *Operations Research (OpRe)*

Contextual Non-perishable Inventory Control with Censored Demand and General Function Approximation
Mengxiao Zhang*, *Dingli Ma**, *Shi Chen*, *Haipeng Luo*, *Yingfei Wang*, in submission to a journal, accepted by *INFORMS Workshop on Data Science 2025*

Autobidders with Budget and ROI Constraints: Efficiency, Regret, and Pacing Dynamics
*Brendan Lucier**, *Sarath Pattathil**, *Aleksandrs Slivkins**, **Mengxiao Zhang***, submitted to *Journal of Machine Learning Research (JMLR)*

Supply Chain Coordination with Unknown Demand Distribution: No-Regret Learning
*Shi Chen**, *Haipeng Luo**, *Yingfei Wang**, **Mengxiao Zhang***, SSRN 4456201, minor revision in *Production and Operations Management (POM)*

Supply Chain Contracting Under Nonparametric Demands
*Shi Chen**, *Haipeng Luo**, *Yingfei Wang**, **Mengxiao Zhang***, in preparation

Graduate Courses:

2018 Fall: CSCI 670 Advanced Analysis of Algorithm. Instructor: David Matthias Kempe, GPA:4.0
2018 Fall: CSCI 671 Randomized Algorithm. Instructor: David Matthias Kempe, GPA:4.0
2019 Spring: DSO 699 Statistic Maching Learning. Instructor: Jason D.Lee, GPA: 4.0
2019 Fall: CSCI 675 Convex and Combinatorial Optimization. Instructor: Shaddin Dughmi, GPA: 4.0
2020 Spring: CSCI 672 Approximation Algorithm. Instructor: Shaddin Dughmi, GPA: 4.0
2020 Fall: CSCI 556 Introduction to Cryptography. Instructor: Ming-deh Huang, GPA: 4.0

Mentoring

Visiting PhD students:

Hao Qiu (from Università degli Studi di Milano), 05/2024 - Now

Mentoring PhD students:

Jiaxiao Frances Fang, University of Iowa, 09/2025 - Now

Siyu Niu, University of Iowa, 09/2025 - Now

Internship

Carnegie Mellon University

Mentor: Maria Florina Balcan and Ellen Vitercik

Project: Comparison Based Choices in Economics

June 2017 - Sept 2017

Amazon.com

Applied Scientist Intern at Sponsor Brand Response Model Team

Mentor: Chu Wang

Project: Contextual Query Rewriting and Beyond

May 2020 - Aug 2020

Amazon.com

Applied Scientist Intern at Sponsor Brand Response Model Team

Mentor: Chu Wang

Project: Improved Seq2Seq Query Rewriting in E-commerce via Shopper Intent Learning

May 2021 - Aug 2021

Microsoft Research

Research Intern

Mentor: Alex Slivkins and Brendan Lucier

Project: Multi-agent auction under resource and return-on-investment constraints

May 2022 - Aug 2022

Teaching Assistant

CSCI 570: Analysis of Algorithms, Instructor: Victor Adamchik	2020 Spring
CSCI 567: Machine Learning, Instructor: Haipeng Luo	2020 Fall
CSCI 567: Machine Learning, Instructor: Haipeng Luo	2021 Fall
CSCI 670: Advanced Analysis of Algorithms, Instructor: Ming-Deh Huang	2022 Spring
CSCI 670: Advanced Analysis of Algorithms, Instructor: Ming-Deh Huang	2023 Spring
CSCI 570: Analysis of Algorithms, Instructor: Shahriar Shamsian	2023 Summer
CSCI 567: Machine Learning, Instructor: Vatsal Sharan	2024 Spring

Instructor

BAIS-7900: Special Topics in Business Analytics, University of Iowa	2026 Fall
BAIS-6110: Big Data Management and Analytics, University of Iowa	2026 Spring
BAIS-4220: Advanced Database Management & Big Data, University of Iowa	2026 Spring
BAIS-3200: Database Management, University of Iowa	2025 Fall
BAIS-3200: Database Management, University of Iowa	2025 Spring

Awards:

NeurIPS 2025 Outstanding Reviewer Award, 2025
NeurIPS 2023 Outstanding Reviewer Award, 2023
Recipient of National Scholarship in 2016 (Top 1 in department);
Recipient of National Scholarship in 2017 (Top 1 in department);
Recipient of Peking University Foundation Scholarship in 2015;
Recipient of Peking University Merit Student in 2015;
Recipient of Peking University Merit Student in 2016;
Recipient of Peking University Pacemaker of Merit Student in 2017 (Top 1 in department);
Beijing Merit Student (55 students across Peking University) in 2017;
Pacemaker of Merit Student in 2017 (Top 1 in department);
Recipient of Peking University Outstanding Undergraduates, Beijing Outstanding Undergraduates in 2018;

Service:

Committee Member / Reviewer:

Conferences:

- Advances in Neural Information Processing Systems (NeurIPS): 2025, 2024, 2023, 2022, 2021, 2020
- The Association for the Advancement of Artificial Intelligence (AAAI): 2025, 2023, 2022
- International Conference on Machine Learning (ICML): 2025, 2024, 2023, 2022, 2021, 2020
- Conference on Learning Theory (COLT): 2026, 2025, 2024, 2023
- Annual ACM Symposium on Theory of Computing (STOC): 2023
- International Conference on Learning Representations (ICLR): 2026, 2025, 2024
- Innovations in Theoretical Computer Science (ITCS): 2024
- International Joint Conference on Artificial Intelligence (IJCAI): 2026, 2025, 2024, 2023, 2022, 2021
- ACM International Conference on Knowledge Discovery and Data Mining (KDD): 2021
- International Conference on Artificial Intelligence and Statistics (AISTATS): 2026, 2025, 2024, 2023
- Conference on Algorithmic Learning Theory (ALT): 2021
- Conference on Economics and Computation (EC): 2023
- Conference on Uncertainty in Artificial Intelligence (UAI): 2025
- INFORMS Workshop on Data Science (WDS): 2023, 2025

Journals:

- Journal of Machine Learning Research (JMLR)
- Transactions on Machine Learning Research (TMLR)
- INFORMS Journal on Computing (IJOC)
- Management Science (MS)
- Operations Research (OpRe)
- IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)
- Production and Operations Management (POM)
- Management Information Systems Quarterly (MISQ)
- Annals of Statistics (AoS)
- Machine Learning

Area Chair:

- International Conference on Machine Learning (ICML): 2025, 2026
- Advances in Neural Information Processing Systems (NeurIPS): 2026

Talk:

Alternating Regret for Online Convex Optimization

INFORMS Annual Meeting, Atlanta, October, 2025

Invited talk at International Conference on Next-Generation AI & Machine Learning (NXT-AI), 2025

New Challenges for (Contextual) Multi-Armed Bandits: Fairness Objectives, Indirect Feedback, and Beyond

Invited talk at Industrial & Enterprise Systems Engineering at University of Illinois Urbana-Champaign, February 2025

Methods Research Seminar at Tippie Business School in the University of Iowa, March 2025

Invited talk in Adaptive Testing Reading Group at Airbnb, Dec 2025.

Invited talk at Computer Science Department at University of Iowa, Dec 2025.

Autobidders with Budget and ROI Constraints: Efficiency, Regret, and Pacing Dynamics

INFORMS Annual Meeting, Seattle, October, 2024

Robust and Adaptive Algorithm Design in Online Learning

The Chinese University of Hong Kong (online), April 2024

Statistics and Actuarial Science Department at University of Iowa, seminar talk, September 2024

Online Learning Meets Operational Research

Business Analytics Department, Tippie College of Business, University of Iowa, March 2024

No-Regret Learning in Two-Echelon Supply Chain with Unknown Demand Distribution

International Conference on Artificial Intelligence and Statistics (AISTATS): Valencia (online), April 2023

INFORMS Annual Meeting, Phoenix, October 2023

Supply Chain Contracting Under Nonparametric Demands

INFORMS Annual Meeting, Phoenix, October 2023

Corralling a Larger Band of Bandits: A Case Study on Switching Regret for Linear Bandits

Conference on Learning Theory (COLT), London (online), July 2022

Adaptive Bandit Convex Optimization with Heterogeneous Curvature

Conference on Learning Theory (COLT), London (online), July 2022

No-Regret Learning in Time-Varying Zero-Sum Games

AI-TIME invited talk (online), August 2022

Achieving Near Instance-Optimality and Minimax-Optimality in Stochastic and Adversarial Linear Bandits Simultaneously

International Conference on Machine Learning (ICML), virtual, July, 2021

Linear Last-iterate Convergence in Constrained Saddle-point Optimization

RPI invited talk (online), April 2021

Bias-no-more: High-probability Data-dependent Regret Bounds for Adversarial Bandits and MDPs

Advances in Neural Information Processing Systems (NeurIPS), virtual, December 2020

A Closer Look at Small-loss Bounds for Bandits with Graph Feedback

Conference on Learning Theory (COLT), virtual, July 2020