Xingyu Zhou

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Research interests

Reinforcement Learning, Language Models, Differential Privacy
Online Learning, Queueing Theory

Employment

Wayne State University — Detroit, MI
Assistant Professor — 01/2021 – Present
Department of Electrical and Computer Engineering

Alibaba Group, USA — Sunnyvale, CA
Research Intern — 06/2020 – 08/2020
Mentor: Jian Tan

Meta — Menlo Park, CA
Machine Learning Engineering Intern — 05/2019 – 08/2019

Education

Ohio State University — Columbus, OH
PhD in Electrical and Computer Engineering — 08/2015 – 12/2020
Advisor: Ness Shroff

Tsinghua University — Beijing, China
MS in Electrical Engineering — 09/2012 – 07/2015
Advisors: Wei Chen and Bo Bai

Beijing University of Posts and Telecommunications — Beijing, China
BS in Electrical Engineering, Rank: 1/120 — 09/2008 – 06/2012

Honors and Awards

NSF CAREER Award	2025
NSF CRII Award	2022
Best Student Paper & Runner-up Awards (IEEE WiOpt)	2022
Presidential Fellowship (Ohio State University, highest honor)	2019
Presidential Scholarship, Finalist (Tsinghua University, highest honor)	2014
National Scholarship	2011, 2014
Outstanding Graduate Award of Beijing City	2012, 2015
Outstanding Graduate Award (BUPT and Tsinghua)	2012, 2015
Distinguished Dissertation Award (BUPT and Tsinghua)	2012, 2015
Academic Rising Star Award (Tsinghua)	2015
12.9 Scholarship (Tsinghua)	2014
First Prize, National Undergraduate Electronic Design Contest	2011

Grants

NSF CAREER (2441519) 10/2025 – 09/2030
CAREER: Foundations of Trustworthy Sequential Decision-Making: Privacy, Robustness, and Fairness
$500,000, Solo PI

NSF CNS Medium (2312835) 10/2023 – 09/2026
Collaborative Research: NeTS: Medium: Black-box Optimization of White-box Networks: Online Learning for Autonomous Resource Management in NextG Wireless Networks
$1,200,000, PI at WSU with share of $300,000

NSF CRII (2153220) 07/2022 – 06/2026
CNS: Towards an Efficient Serverless Mobile Edge Computing
$175,000 (with no cost extensions), Solo PI

Conference Publications

(† Equal Contributions)

A Unified Theoretical Analysis of Private and Robust Offline Alignment: from RLHF to DPO
Xingyu Zhou, Yulian Wu, Francesco Orabona
ICML 2025 (Spotlight)

SquareχPO: Differentially Private and Robust χ^2-Preference Optimization in Offline Direct Alignment
Xingyu Zhou, Yulian Wu, Wenqian Weng, Francesco Orabona
ICML 2025

Optimal Rates for Robust Stochastic Convex Optimization
Changyu Gao, Andrew Lowy, Xingyu Zhou, Stephen Wright
FORC 2025

Locally Private and Robust Multi-Armed Bandits
Xingyu Zhou, Wei Zhang
NeurIPS 2024

Taming Heavy-Tailed Losses in Adversarial Bandits and the Best-of-Both-Worlds Setting
Duo Cheng, Xingyu Zhou, Bo Ji
NeurIPS 2024

Private Heterogeneous Federated Learning Without a Trusted Server Revisited: Error-Optimal and Communication-Efficient Algorithms for Convex Losses
Changyu Gao[†], Andrew Lowy[†], Xingyu Zhou[†], Stephen Wright
ICML 2024

On Differentially Private Federated Linear Contextual Bandits
Xingyu Zhou, Sayak Ray Chowdhury
ICLR 2024

Differentially Private Reward Estimation with Preference Feedback
Sayak Ray Chowdhury[†], Xingyu Zhou[†], Nagarajan Natarajan
AISTATS 2024

Towards Achieving Sub-linear Regret and Hard Constraint Violation in Model-free RL
Arnob Ghosh, Xingyu Zhou, Ness Shroff
AISTATS 2024

On Private and Robust Bandits
Yulian Wu[†], Xingyu Zhou[†], Youming Tao, Di Wang
NeurIPS 2023

Understanding the Role of Feedback in Online Learning with Switching Costs
Duo Cheng, Xingyu Zhou, Bo Ji
ICML 2023

Differentially Private Episodic Reinforcement Learning with Heavy-tailed Rewards
Yulian Wu, Xingyu Zhou, Sayak Ray Chowdhury, Di Wang
ICML 2023

Provably Efficient Model-Free Algorithms for Non-stationary CMDPs
Honghao Wei, Arnob Ghosh, Ness Shroff, Lei Ying, Xingyu Zhou
AISTATS 2023

Achieving Sub-linear Regret in Infinite Horizon Average Reward Constrained MDP with Linear Function Approximation
Arnob Ghosh, Xingyu Zhou, Ness Shroff
ICLR 2023

Distributed Differential Privacy in Multi-Armed Bandits
Sayak Ray Chowdhury[†], Xingyu Zhou[†]
ICLR 2023

(Private) Kernelized Bandits with Distributed Biased Feedback
Fengjiao Li, Xingyu Zhou, Bo Ji
SIGMETRICS 2023

On Kernelized Multi-Armed Bandits with Constraints
Xingyu Zhou, Bo Ji
NeurIPS 2022

Provably Efficient Model-Free Constrained RL with Linear Function Approximation
Arnob Ghosh, Xingyu Zhou, Ness Shroff
NeurIPS 2022

Differentially Private Linear Bandits with Partial Distributed Feedback
Fengjiao Li, Xingyu Zhou, Bo Ji
WiOpt 2022 (Best Student Paper)

Interference Constrained Beam Alignment for Time-Varying Channels via Kernelized Bandits
Yuntian Deng, Xingyu Zhou, Arnob Ghosh, Abhishek Gupta, Ness Shroff
WiOpt 2022 (Best Student Paper, Runner-up)

Shuffle Private Linear Contextual Bandits
Sayak Ray Chowdhury[†], Xingyu Zhou[†]
ICML 2022

Weighted Gaussian Process Bandits for Non- stationary Environments
Yuntian Deng, Xingyu Zhou, Baekjin Kim, Ambuj Tewari, Abhishek Gupta, Ness Shroff
AISTATS 2022

Differentially Private Reinforcement Learning with Linear Function Approximation
Xingyu Zhou
SIGMETRICS 2022

Differentially Private Regret Minimization in Episodic Markov Decision Processes
Sayak Ray Chowdhury[†], Xingyu Zhou[†]
AAAI 2022 (Oral)

Adaptive Control of Differentially Private Linear Quadratic Systems
Sayak Ray Chowdhury[†], Xingyu Zhou[†], Ness Shroff
ISIT 2021

Local Differential Privacy for Bayesian Optimization

Xingyu Zhou, Jian Tan
AAAI 2021

No-Regret Algorithms for Time-Varying Bayesian Optimization
Xingyu Zhou, Ness Shroff
CISS 2021

Optimal Load Balancing with Locality Constraints
Wentao Weng, Xingyu Zhou, R. Srikant
SIGMETRICS 2021

Asymptotically Optimal Load Balancing in Large-scale Heterogeneous Systems with Multiple Dispatchers
Xingyu Zhou, Ness Shroff, Adam Wierman
Performance 2021

Heavy-traffic Delay Optimality in Pull-based Load Balancing Systems: Necessary and Sufficient Conditions
Xingyu Zhou, Jian Tan, Ness Shroff
SIGMETRICS 2019

Flexible load balancing with multi-dimensional state-space collapse: Throughput and heavy-traffic delay optimality
Xingyu Zhou, Jian Tan, Ness Shroff
Performance 2018

Degree of queue imbalance: Overcoming the limitation of heavy-traffic delay optimality in load balancing systems
Xingyu Zhou[†], Fei Wu[†], Jian Tan, Kannan Srinivasan, Ness Shrof
SIGMETRICS 2018

Designing low-complexity heavy-traffic delay-optimal load balancing schemes: Theory to algorithms
Xingyu Zhou, Fei Wu, Jian Tan, Yin Sun, Ness Shroff
SIGMETRICS 2018

Energy efficient relay antenna selection for AF MIMO two-way relay channels
Xingyu Zhou, Bo Bai, and Wei Chen
ICC 2015

On energy efficiency maximization of AF MIMO relay systems with antenna selection
Xingyu Zhou, Bo Bai, Wei Chen, Yuxing Han

GlobalSIP 2014

Energy efficient transmission for DF MIMO relay systems with antenna selection
Xingyu Zhou, Bo Bai, Wei Chen, Yuxing Han
GlobalSIP 2014

An iterative algorithm for joint antenna selection and power adaptation in energy efficient MIMO
Xingyu Zhou, Bo Bai, Wei Chen
ICC 2014

Journal Publications
(† Equal Contributions)

Contextual Bandits with Packing and Covering Constraints: A Modular Lagrangian Approach via Regression
Aleksandrs Slivkins, Xingyu Zhou, Karthik Abinav Sankararaman, Dylan J. Foster
Journal of Machine Learning Research (JMLR) 2024

Distributed Linear Bandits with Differential Privacy
Fengjiao Li, Xingyu Zhou, Bo Ji
IEEE Transactions on Network Science and Engineering (TNSE) 2024

(Private) Kernelized Bandits with Distributed Biased Feedback
Fengjiao Li, Xingyu Zhou, Bo Ji
Proceedings of the ACM on Measurement and Analysis of Computing Systems (POMACS) 2023

Differentially Private Reinforcement Learning with Linear Function Approximation
Xingyu Zhou
Proceedings of the ACM on Measurement and Analysis of Computing Systems (POMACS) 2022

Asymptotically Optimal Load Balancing in Large-scale Heterogeneous Systems with Multiple Dispatchers
Xingyu Zhou, Ness Shroff, Adam Wierman
Performance Evaluation, Elsevier 2021

Optimal Load Balancing with Locality Constraints
Wentao Weng, Xingyu Zhou, R. Srikant
Proceedings of the ACM on Measurement and Analysis of Computing Systems (POMACS) 2020

Heavy-traffic Delay Optimality in Pull-based Load Balancing Systems: Necessary and Sufficient Conditions
Xingyu Zhou, Jian Tan, Ness Shroff
Proceedings of the ACM on Measurement and Analysis of Computing Systems (POMACS) 2018

Flexible load balancing with multi-dimensional state-space collapse: Throughput and heavy-traffic delay optimality
Xingyu Zhou, Jian Tan, Ness Shroff
Performance Evaluation, Elsevier 2018

Degree of queue imbalance: Overcoming the limitation of heavy-traffic delay optimality in load balancing systems
Xingyu Zhou[†], Fei Wu[†], Jian Tan, Kannan Srinivasan, Ness Shrof
Proceedings of the ACM on Measurement and Analysis of Computing Systems (POMACS) 2018

Designing low-complexity heavy-traffic delay-optimal load balancing schemes: Theory to algorithms
Xingyu Zhou, Fei Wu, Jian Tan, Yin Sun, Ness Shroff
Proceedings of the ACM on Measurement and Analysis of Computing Systems (POMACS) 2017

Antenna selection in energy efficient MIMO systems: A survey
Xingyu Zhou, Bo Bai, Wei Chen
China Communications 2015 (Invited paper)

Greedy relay antenna selection for sum rate maximization in amplify-and-forward MIMO two-way relay channels under a holistic power model
Xingyu Zhou, Bo Bai, and Wei Chen
IEEE Communications Letters 2015

How many antennas should be activated in keyhole channels under a holistic power model
Tong Tian, Xingyu Zhou, Bo Bai, and Wei Chen
IEEE Communications Letters 2015

Iterative antenna selection for decode- and-forward MIMO relay systems under a holistic power model
Xingyu Zhou, Bo Bai, and Wei Chen
IEEE Communications Letters 2014

A low complexity energy efficiency maximization method for multiuser amplify-and-forward MIMO relay systems with a holistic power model
Xingyu Zhou, Bo Bai, and Wei Chen
IEEE Communications Letters 2014

Iterative antenna selection for multi- stream MIMO under a holistic power model
Xingyu Zhou, Bo Bai, and Wei Chen
IEEE Wireless Communications Letters 2013

Preprints

Multi-armed bandits with local differential privacy
Wenbo Ren, Xingyu Zhou, Jia Liu, Ness B Shroff
arxiv preprint arXiv:2007.03121

A Note on Load Balancing in Many-Server Heavy-Traffic Regime
Xingyu Zhou, Ness Shroff
arxiv preprint arXiv:2004.09574

A Note on Stein's Method for Heavy-Traffic Analysis
Xingyu Zhou, Ness Shroff
arxiv preprint arXiv:2003.06454

On the Fenchel Duality between Strong Convexity and Lipschitz Continuous Gradient
Xingyu Zhou
arxiv preprint arXiv:1803.06573

Talks

The Interplay between Privacy and Robustness: from Mean Estimation to LLM Alignment
CSP Seminar, UMich, Ann Arbor (Host: Vijay Subramanian) 09/2025
CAD Seminar, Wayne State University (Host: Yan Wang) 12/2024

Contextual Bandits with Constraints Revisited: A Modular Approach with Improved Rates
Safe RL Seminar (Host: Shangding Gu) 08/2024

On Differentially Private Federated Linear Contextual Bandits
ASU (Host: Guoliang Xue) 10/2023
INFORMS Annual Meeting 10/2023
Robotics and Control Seminar, MSU (Host: Vaibhav Srivastava) 09/2023
AI-EDGE Seminar, OSU 03/2023

Shuffle Private Linear Contextual Bandits

Big Data and ML Seminar, UCLA (Host: Quanquan Gu) 05/2022

Stein's Method for Heavy-traffic Analysis: Load Balancing and Scheduling
INFORMS Annual Meeting 10/2021
YEQT workshop 06/2021

Asymptotically Optimal Load Balancing in Large-scale Heterogeneous Systems with Multiple Dispatchers
INFORMS Annual Meeting 10/2020

Heavy-traffic Delay Optimality in Pull-based Load Balancing Systems: Necessary and Sufficient Conditions
INFORMS Annual Meeting 09/2019
RSRG Seminar, Caltech, 02/2019

Load balancing in heavy traffic: Theory and algorithms
CMU 09/2018

Teaching

Online and Adaptive Methods for Machine Learning
ECE 7640, Wayne State University Fall 2021/2024/2025
A brand new graduate course on sequential decision-making, covering online learning, bandits, reinforcement learning as well as applications in language models such as alignment and reasoning.

Object-Oriented Programming for ECE
ECE 2050, Wayne State University 2022 – 2025
A brand new undergraduate course on programming with C++, with a focus on computational thinking and general problem-solving skills by leveraging recursion, backtracking, data structures and OOP.

Algorithms and Data Structures
ECE 4050, Wayne State University Winter 2021/2022, Fall 2022/2023
An existing course, but with a brand new set of lecture notes.

Mentoring

Current PhD Students
Wenqian Weng (UC Davis, BS; UW, MS)
Yi He (Beijing Jiao Tong University, BS)

PhD Committee
Mahdi Rouholamini (Wayne State University) 2025
Changyu Gao (University of Wisconsin-Madison) 2025
Yuntian Deng (Ohio State University) 2021

Co-advised PhD Students and Postdocs

Duo Cheng (PhD, Virginia Tech with Bo Ji)
Changyu Gao (PhD, UW-Madison with Stephen Wright) → Amazon
Fengjiao Li (PhD, Virginia Tech with Bo Ji) → Assistant Professor, Shanxi University
Arnob Ghosh (Postdoc, OSU with Ness Shroff) → Assistant Professor, NJIT
Yuntian Deng (PhD, OSU with Ness Shroff) → Amazon

Remote/Summer Research Interns

Yulian Wu (PhD, KAUST) → Multiple Top Conference Papers
Wei Zhang (PhD, TAMU) → A NeurIPS paper
Wentao Weng (Yao Class, Tsinghua) → A SIGMETRICS paper, now PhD, MIT

Professional Service

Conference Organizing Committee

Web Chair: MobiHoc	2023–2025
SIGMETRICS	2026
Publicity Chair: WiOpt	2024

Conference TPC Members

NeurIPS (Area Chair)	2024-2025
SIGMETRICS	2022-2026
MobiHoc	2023-2025
INFOCOM	2022
WiOpt	2021

Reviewer and Panelist for Proposals

NSF US-UK Privacy Enhancing Technologies (PETs) prize challenge	2022
NSF Privacy-Preserving Data Sharing in Practice (PDaSP)	2024

Reviewer for Journals

Journal of Machine Learning Research
Operations Research
IEEE Transactions on Information Theory
IEEE/ACM Transactions on Networking
IEEE Transactions on Communications
IEEE Journal on Selected Areas in Communications
IEEE Transactions on Network Science and Engineering

Reviewer for Conferences

ICML, ICLR, NeurIPS, AISTATS, SIGMETRICS, MobiHoc, WiOpt

Outreach

ML Summer Camp for High School Students

Founder, ECE, Wayne State University — Summer 2023–2025