

Zijian Liu

+1 (201) 565-5192
zl3067@stern.nyu.edu
zl3067.github.io
Zijian Liu

Education

- Sept. 2022 **Department of Technology, Operations, and Statistics at Stern School of Business, New York University, NY**
– May 2026 (Expected) Ph.D. Candidate in Operations Management, advisor: Zhengyuan Zhou
- Sept. 2019 **Courant Institute of Mathematical Sciences, New York University, NY**
– May 2021 M.S. in Computer Science
- Sept. 2015 **School of Computer Science, Wuhan University, Wuhan, China**
– June 2019 B.Eng. in Software Engineering

Research Interests

Mathematical Optimization, Theoretical Machine Learning

Publications & Manuscripts

(* indicates equal contribution, † indicates alphabetical order)

- ICML 2025 **Improved Last-Iterate Convergence of Shuffling Gradient Methods for Nonsmooth Convex Optimization** [Link]
Zijian Liu, Zhengyuan Zhou
- ICLR 2025 **Nonconvex Stochastic Optimization under Heavy-Tailed Noises: Optimal Convergence without Gradient Clipping** [Link]
Zijian Liu, Zhengyuan Zhou
- ICML 2024 **On the Last-Iterate Convergence of Shuffling Gradient Methods** [Link]
(Oral) Zijian Liu, Zhengyuan Zhou
- ICML 2024 **On the Convergence of Projected Bures-Wasserstein Gradient Descent under Euclidean Strong Convexity** [Link]
Junyi Fan*, Yuxuan Han*, Zijian Liu, Jian-Feng Cai, Yang Wang, Zhengyuan Zhou
- ICLR 2024 **Revisiting the Last-Iterate Convergence of Stochastic Gradient Methods** [Link]
Zijian Liu, Zhengyuan Zhou
- COLT 2023 **Breaking the Lower Bound with (Little) Structure: Acceleration in Non-Convex Stochastic Optimization with Heavy-Tailed Noise** [Link]
Zijian Liu, Jiawei Zhang, Zhengyuan Zhou
- ICML 2023 **High Probability Convergence of Stochastic Gradient Methods** [Link]
Zijian Liu*, Ta Duy Nguyen*, Thien Hang Nguyen*, Alina Ene, Huy L. Nguyen
- ICLR 2023 **On the Convergence of AdaGrad(Norm) on \mathbb{R}^d : Beyond Convexity, Non-Asymptotic Rate and Acceleration** [Link]
Zijian Liu*, Ta Duy Nguyen*, Alina Ene, Huy L. Nguyen
- ICML 2022 **Adaptive Accelerated (Extra-)Gradient Methods with Variance Reduction** [Link]
Zijian Liu*, Ta Duy Nguyen*, Alina Ene, Huy L. Nguyen
- ICML 2022 **Distributionally Robust Q -Learning** [Link]
Zijian Liu, Qinxun Bai, Jose Blanchet, Perry Dong, Wei Xu, Zhengqing Zhou, Zhengyuan Zhou

Operations Research	Product Return as a Sequence of Search Processes: Optimality and Search Duration
Major Revision	[Available upon request] Xiaoyu Fan [†] , Srikanth Jagabathula [†] , Zijian Liu [†] , Eitan Muller [†]
In Submission	Online Convex Optimization with Heavy Tails: Old Algorithms, New Regrets, and Applications [Link] Zijian Liu
In Submission	Clipped Gradient Methods for Nonsmooth Convex Optimization under Heavy-Tailed Noise: A Refined Analysis [Available upon request] Zijian Liu
Manuscript	Near-Optimal Non-Convex Stochastic Optimization under Generalized Smoothness [Link] Zijian Liu, Srikanth Jagabathula, Zhengyuan Zhou
Manuscript	Stochastic Nonsmooth Convex Optimization with Heavy-Tailed Noises: High-Probability Bound, In-Expectation Rate and Initial Distance Adaptation [Link] Zijian Liu, Zhengyuan Zhou
Manuscript	META-STORM: Generalized Fully-Adaptive Variance Reduced SGD for Unbounded Functions [Link] Zijian Liu*, Ta Duy Nguyen*, Thien Hang Nguyen*, Alina Ene, Huy L. Nguyen

Invited Talks

- Jul. 2024 *The 25th International Symposium on Mathematical Programming*
- Jul. 2024 *The 41st International Conference on Machine Learning*

Services

- Journal *IEEE Journal on Selected Areas in Information Theory (JSAIT)*
- Reviewer *IEEE Transactions on Automatic Control (TAC)*
IEEE Transactions on Control Systems Technology (TCST)
Journal of Machine Learning Research (JMLR)
Management Science
Mathematical Finance
SIAM Journal on Optimization (SIOPT)
Statistica Sinica
- Conference *ICML 2022, 2024, 2025*
- Reviewer *NeurIPS 2024, 2025*
ICLR 2025
ALT 2025
- Organizer *MOILS seminar (internal seminar series at NYU Stern) Spring 2023*

Teaching Experience

- Summer 2025 **Operations Management**, Instructor
Class Size: 15
 - Teach regular class
 - Grade assignments and exams and hold office hours
New York University
- Fall 2024 **Operations Management**, Teaching Fellow
Instructor: Prof. Divya Singhvi
 - Grade assignments and exams and hold office hours
New York University

Summer 2024 **Stochastic Modeling & Simulation**, Teaching Fellow

Instructor: Prof. Joshua Reed

- Grade assignments and exams and hold office hours

New York University

Fall 2020 **Bayesian Machine Learning**, Section Leader

Instructor: Prof. Andrew Gordon Wilson

- Teach supplementary materials and advanced topics in recitation
- Grade assignments and exams and hold office hours

New York University