

Zongrui Zou

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PhD Student @ Nanjing University, Nanjing, China

RESEARCH INTEREST

My research lies at the intersection of computer science and applied mathematics, with a focus on developing algorithmic robustness guarantees for data privacy and machine learning. I am passionate about translating rigorous mathematics into practical solutions for industrial challenges.

EDUCATION

- **Department of Computer Science, Nanjing University** Jul, 2022 - *Present*
PhD Student at TCS Group
◦ Advisor: Prof. Jingcheng Liu Nanjing, China
- **Department of Computer Science, Shandong University** Jul, 2018 - Jul, 2022
Undergraduate Student
◦ GPA: 4.3/5.0 (Rank: 1/51) Qingdao, China

INDUSTRIAL EXPERIENCE

- **Morgan Stanley** July 27 - October 28, 2025
Research Intern at *Machine Learning Research* 
◦ Host: Mina Dalirrooyfard Hong Kong SAR

SELECTED PUBLICATIONS

*IN THEORETICAL COMPUTER SCIENCE VENUES, AUTHORS ARE RANKED ALPHABETICALLY

- [AISTATS 2026] **Differentially Private Minimum Spanning Tree in Euclidean Graphs.**
To appear in *International Conference on Artificial Intelligence and Statistics 2026* (CORE Rank A)
Zongrui Zou, Alessandro Epasto, Chenglin Fan and Rudrajit Das.
- [SODA 2026] **Differentially Private Algorithms for Cuts: A Shifting Mechanism and More.**
In *ACM-SIAM Symposium on Discrete Algorithms 2026* (CCF-A, CORE Rank A*)
Rishi Chandra*, Micheal Dinitz*, Chenglin Fan* and Zongrui Zou*
- [NeurIPS 2025] **A Generalized Binary Tree Mechanism for DP Approximation of All-Pair Distances.**
In *Advances in Neural Information Processing Systems 2025* (CCF-A, CORE Rank A*)
Zongrui Zou, Chenglin Fan, Micheal Dinitz, Jingcheng Liu and Jalaj Upadhyay
- [FOCS 2025] **Deterministic counting from coupling independence.**
In *IEEE Symposium on Foundations of Computer Science 2025* (CCF-A, CORE Rank A*)
Xiaoyu Chen*, Weiming Feng*, Heng Guo*, Xinyuan Zhang* and Zongrui Zou*
- [ICLR 2025] **Optimality of factorization mechanism on ℓ_p metric.**
In *International Conference on Learning Representations 2025* (CCF-A, CORE Rank A*)
Zongrui Zou, Jingcheng Liu and Jalaj Upadhyay
- [AISTATS 2025 (Oral)] **Linear-time release of private synthetic graphs.**
In *International Conference on Artificial Intelligence and Statistics 2025* (CORE Rank A)
Selected as Oral Presentation (Top 2%)
Zongrui Zou, Jingcheng Liu and Jalaj Upadhyay
- [SODA 2024] **Optimal bounds on private graph approximation.**
In *ACM-SIAM Symposium on Discrete Algorithms 2024* (CCF-A, CORE Rank A*)
Jingcheng Liu*, Jalaj Upadhyay* and Zongrui Zou*
- [RANDOM 2024] **Near-linear time samplers for matroid independent sets.**
In *International Conference on Randomization and Computation 2024* (CORE Rank A)
Xiaoyu Chen*, Heng Guo*, Xinyuan Zhang* and Zongrui Zou*
- [IWQoS 2022] **A private adaptive ranking algorithm for MAB Crowdsourcing.**
In *IEEE International Workshop on Quality of Service 2022* (CORE Rank B)
Shuzhen Chen, Dongxiao Yu, Zongrui Zou, Feng Li and Xiuzhen Cheng
- [ToC 2022] **SPDL: A blockchain-enabled private decentralized system.**
In *IEEE Transactions on Computers 2022* (CCF-A)
Minghui Xu, Zongrui Zou, Ye Cheng, Qin Hu, Dongxiao Yu and Xiuzhen Cheng
- [TITS 2022] **Decentralized Parallel SGD Based on Weight-Balancing for Intelligent IoV.**
In *IEEE Transactions on Intelligent Transportation Systems 2022*
Yuan Yuan, Jiguo Yu, Zongrui Zou, Xiaolu Cheng, Dongxiao Yu and Zhipeng Cai

MANUSCRIPTS

The Price of Locality in Label Differential Privacy.

Zongrui Zou, Mina Dalirrooyfard, Jingcheng Liu and Jalaj Upadhyay

The Price of Privacy in CSP Approximation.

Prathamesh Dharangutte, Jingcheng Liu*, Pasin Manurangsi*, Akbar Rafiey*, Phanu Vajanopath* and Zongrui Zou**

Private Shortest Distances in Continual Release Model.

Rachel Cummings, Tamalika Mukherjee*, Jalaj Upadhyay*, Hantao Yu* and Zongrui Zou**

Soft Gibbs Distributions for Max-CSPs.

Jingcheng Liu, Yitong Yin*, Yixiao Yu* and Zongrui Zou**

Private Approximation of Graph Spectra and Cuts via Spectral Amplifiers.

Chenglin Fan, Jingcheng Liu*, Pan Peng*, Hangyu Xu* and Zongrui Zou**

SELECTED TALKS

- **Private Spectral and Cut Approximation** January 24, 2024
Algorithms and Complexity Seminar @ Johns Hopkins University Baltimore, MD, USA
- **Optimal Bounds on Private Graph Approximation** January 26, 2024
Columbia Theory Seminar @ Columbia University New York City, NY, USA
- **Differentially Private Algorithm for Cuts** October 4, 2024
Boston-area Data Privacy Seminar @ Harvard University Boston, MA, USA
- **Differentially Private Multiway and k-Cut** October 9, 2024
CMU Theory Lunch Talk @ Carnegie Mellon University (Video Recording) Pittsburgh, PA, USA
- **Linear-Time Release of Private Synthetic Graphs** May 4, 2025
28th International Conference on Artificial Intelligence and Statistics (AISTATS) Mai Khao, Thailand
- **Private Graph Approximation: Algorithms, Hardness and Beyond** October 15, 2025
MSML Seminar Talk @ Morgan Stanley Hong Kong SAR, China

HONORS AND AWARDS

- **National Encouragement Scholarship** 2019,2020
Ministry of Education, China
- **The Academic Achievement First Prize Award** 2019,2020
Shandong University
- **National Scholarship** 2021
Ministry of Education, China
- **The First Prize in Contemporary Undergraduate Mathematical Contest in Modeling** 2021
Chinese Society for Industrial and Applied Mathematics
- **Dean's Scholarship** 2022
Department of Computer Science, Shandong University
- **SIAM Student Travel Awards** 2023
Society for Industrial and Applied Mathematics
- **First-Class Doctoral Award for Excellence** 2024
Nanjing University
- **Tencent Doctoral Fellowship** 2025
Tencent

TEACHING EXPERIENCE

- **Teaching Assistant | Probability Theory** Spring 2021
Shandong University. Lectures: Dongxiao Yu
- **Teaching Assistant | Combinatorial Optimization** Fall 2021
Shandong University. Lectures: Dongxiao Yu
- **Teaching Assistant | Advanced Algorithms** Fall 2023
Nanjing University. Lectures: Yitong Yin, Shi Li and Jingcheng Liu
- **Teaching Assistant | Probability Theory** Spring 2023, 2024, 2025
Nanjing University. Lectures: Yitong Yin and Jingcheng Liu

PROFESSIONAL SERVICES

- **Conference Reviewer**

- NeurIPS (2024, 2025, 2026)
- ICML (2025, 2026)
- RANDOM (2025)
- AISTATS (2025, 2026)
- ICLR (2024, 2025)
- SODA (2026, 2027)
- FOCS (2026)
- STOC (2025)