JIAYU ZHANG
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Education

Columbia University, PhD in Operations Research, Aug. 2024 - Present
- Advisor: Tianyi Lin

Columbia University, M.S. in Operations Research, Aug. 2024 - Oct. 2025

Shanghai Jiao Tong University, B.S. in Mathematics, Aug. 2020 - Jun. 2024

Publications

Preprints
- Goldfarb, Donald, Lexiao Lai, Tianyi Lin, and Jiayu Zhang. "Non-Convex Self-Concordant Functions: Practical Algorithms and Complexity Analysis." arXiv preprint arXiv:2511.15019 (2025).
- Lei, Mingyu, Jiayu Zhang, and Yinyu Ye. "Blessing of high-order dimensionality: from non-convex to convex optimization for sensor network localization." arXiv preprint arXiv:2308.02278 (2023).

Experiences

Cardinal Operations - Student Researcher, Feb 2023 - Sep 2023, Shanghai, China
- Demonstrated that stochastic first-order methods reduce computation time by ~90% for large-scale (>10,000 nodes) sensor network localization problems by benchmarking first-order and semi-definite programming based methods with commercial solvers.
- Developed theories on the geometry of the sensor network localization problem, establishing the foundation for a co-authored research paper.

Teaching

Columbia University, Teaching Assistant
- Fall 2025: IEOR 6613 Optimization I (PhD level), instructor: Vineet Goyal
- Spring 2025: IEOR 4004 Optimization Models and Methods I (graduate level), instructor: Vineet Goyal

Fellowships and Awards

- Boyle Fellowship, 2024

Skills

- Coding: Python (PyTorch, NumPy, SciPy, Pandas), Linux, Latex, Julia, Matlab
- Language: English, Mandarin