

JIAMING YANG

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Computer Science and Engineering, University of Michigan

RESEARCH INTERESTS

I study **randomized numerical linear algebra (RandNLA)**, with applications in large-scale optimization problems and machine learning. I am broadly interested in machine learning theory, and the intersection of randomized algorithms, random matrix theory and statistics.

EDUCATION

Computer Science and Engineering (CSE), University of Michigan, Ann Arbor 08/2022 - Present
Ph.D. Candidate. GPA: 4.0.

School of Mathematical Sciences (SMS), Peking University 09/2018 - 07/2022
B.S. in Statistics.

RESEARCH EXPERIENCE

University of Michigan, Ann Arbor 08/2022 - Present
Graduate Student Research Assistant. Advisor: Prof. [Michał Dereziński](#)

- Working on randomized numerical linear algebra and machine learning theory.

Peking University 12/2021 - 06/2022
Undergrad thesis. Supervisor: Prof. [Hao Ge](#)

- Established a statistical characterization of a single cell RNA-seq technique. Designed a hypothesis testing framework for judging whether the expression levels of a specific gene in two single cells are the same.

Adobe Research (Remote) 06/2021 - 06/2022
Supervisor: Dr. [Zhao Song](#)

- Worked on the theoretical foundations of machine learning (sparse training scheme, over-parameterized networks, adversarial training, etc.). Resulted in two papers in ICLR and ICML.

Columbia University (Remote) 06/2021 - 12/2021
Supervisor: Prof. [Josh Alman](#)

- Designed a recursive algorithm for solving Kronecker product regression problem exactly and proved its optimality. Applied the result to Kronecker matrix low-rank approximation problem solving.

PUBLICATIONS

- [1] “**Randomized Kaczmarz Methods with Beyond-Krylov Convergence**”, M. Dereziński, E. Rebrova, D. Needell, J. Yang (α - β), **SIAM Journal on Matrix Analysis and Applications**.
- [2] “**Faster Linear Systems and Matrix Norm Approximation via Multi-level Sketched Preconditioning**”, M. Dereziński, C. Musco, J. Yang (α - β), Symposium on Discrete Algorithms (**SODA 2025**).
- [3] “**Solving Dense Linear Systems Faster than via Preconditioning**”, M. Dereziński, J. Yang (α - β), Symposium on Theory of Computing (**STOC 2024**).
- [4] “**HERTA: A High-Efficiency and Rigorous Training Algorithm for Unfolded Graph Neural Networks**”, Y. Yang, J. Yang, W. Hu, M. Dereziński, Mathematics of Modern Machine Learning (**M3L, NeurIPS 2024**).
- [5] “**Federated Adversarial Learning: A Framework with Convergence Analysis**”, X. Li, Z. Song, J. Yang (α - β), International Conference on Machine Learning (**ICML 2023**).
- [6] “**Pixelated butterfly: Simple and efficient sparse training for neural network models**”, B. Chen, T. Dao, K. Liang, J. Yang, Z. Song, A. Rudra, C. Ré, International Conference on Learning Representations (**ICLR 2022**), **spotlight**.

PREPRINTS

- [1] “**Have ASkotch: A Neat Solution for Large-scale Kernel Ridge Regression**”, **arxiv** P. Rathore, Z. Frangella, J. Yang, M. Dereziński, M. Udell. In submission to JMLR.

SKILLS

Programming: Python, Matlab, R, \LaTeX .

Languages: Native in Chinese; Proficient in English (GRE 159 + 170 + 4.0, TOEFL 107 with speaking 25).

TALKS

ICCOPT 2025 (Los Angeles): Randomized Kaczmarz Methods with Beyond-Krylov Convergence. 07/2025

SODA 2025 (New Orleans): Faster Linear Systems via Multi-level Sketched Preconditioning. 01/2025

UMich Theory Lunch: Solving Dense Linear Systems Faster than via Preconditioning. 03/2024

SERVICES

Teaching Assistant for EECS 376: Foundations of Computer Science (Winter 2026).

Reviewer of NeurIPS 2024, 2025, ICML 2025, 2026, AISTATS 2025, 2026.

Reviewer of UMich CSE PhD program applicants.

UMich CSEG Buddy Program: advisor of two graduate students.

AWARDS AND HONORS

Department finalist of Two Sigma PhD Fellowship 2025

RMT+NLA II Travel Grant 2025

SODA Student Travel Grant 2025

STOC Student Travel Grant 2024

University of Michigan Rackham Conference Travel Grant 2023, 2024, 2025