

Lichen Zhang

412-463-5490 | lichenz@mit.edu | [Homepage](#)

EDUCATION

Massachusetts Institute of Technology

Ph.D in Applied Mathematics, Advisor: Jonathan Kelner

Sep. 2022 - May 2027 (expected)

Cambridge, MA

Carnegie Mellon University

M.S. in Computer Science, Advisor: Gary Miller

June 2021 – May 2022

Pittsburgh, PA

Carnegie Mellon University

B.S. in Computer Science

Aug. 2017 – May 2021

Pittsburgh, PA

RESEARCH INTERESTS

- Sketching, sampling and streaming.
- Differential privacy.
- Optimization.

PUBLICATIONS (AUTHOR NAMES IN ALPHABETICAL ORDER)

Sketching Meets Differential Privacy: Fast Algorithm for Dynamic Kronecker Projection Maintenance

- Zhao Song, Xin Yang, Yuanyuan Yang and **Lichen Zhang**
- Published in the 40th International Conference on Machine Learning (ICML 2023)
- arxiv link: <https://arxiv.org/pdf/2210.11542.pdf>

Sketching for First Order Method: Efficient Algorithm for Low-Bandwidth Channel and Vulnerability

- Zhao Song, Yitan Wang, Zheng Yu and **Lichen Zhang**
- Published in the 40th International Conference on Machine Learning (ICML 2023)
- arxiv link: <https://arxiv.org/pdf/2210.08371.pdf>

A Nearly-Optimal Bound for Fast Regression with ℓ_∞ Guarantee

- Zhao Song, Mingquan Ye, Junze Yin and **Lichen Zhang**
- Published in the 40th International Conference on Machine Learning (ICML 2023)

Space-Efficient Interior Point Method, with applications to Linear Programming and Maximum Weight Bipartite Matching

- S. Cliff Liu, Zhao Song, Hengjie Zhang, **Lichen Zhang** and Tianyi Zhou
- Published in the 50th International Colloquium on Automata, Languages and Programming (ICALP 2023)
- arxiv link: <https://arxiv.org/pdf/2009.06106.pdf>

An Online and Unified Algorithm for Projection Matrix Vector Multiplication with Application to Empirical Risk Minimization

- Lianke Qin, Zhao Song, **Lichen Zhang** and Danyang Zhuo
- Published in the 26th International Conference on Artificial Intelligence and Statistics (AISTATS 2023)
- link: <https://proceedings.mlr.press/v206/qin23a/qin23a.pdf>

Dynamic Tensor Product Regression

- Aravind Reddy, Zhao Song and **Lichen Zhang**
- Published in the 36th Conference on Neural Information Processing Systems (NeurIPS 2022)
- arxiv link: <https://arxiv.org/pdf/2210.03961.pdf>

Fast Sketching of Polynomial Kernels of Polynomial Degree

- Zhao Song, David P. Woodruff, Zheng Yu, and **Lichen Zhang**
- Published in the 38th International Conference on Machine Learning (ICML 2021).
- arxiv link: <https://arxiv.org/pdf/2108.09420.pdf>

TEACHING

- CMU 15-155 The Computational Lens** Jan 2022 – May 2022
- Instructor: Professor Pravesh Kothari and Professor Anil Ada
- CMU 15-455 Undergraduate Complexity Theory** Jan 2021 – May 2021
- Instructor: Professor Pravesh Kothari

EXPERIENCE

- Graduate Research Assistant at Massachusetts Institute of Technology** Aug 2023 – present
- Supported by Professor Jonathan Kelner
- Research Scientist Intern at Adobe Inc. (Adobe Research)** May 2023 – Aug 2023
- Mentor: Ritwik Sinha, Zhao Song, Raghavendra Addanki
- Graduate Researcher at Massachusetts Institute of Technology** Sep 2022 – May 2023
- Supported by MIT Reitano Fellowship
- Research Assistant at University of Washington** Jun 2022 – Aug 2022
- Advisor: Yin Tat Lee
- Undergraduate Research Assistant at Carnegie Mellon University** May 2020 – Aug 2020
- Advisor: Gary Miller
 - Supported by CMU Summer Undergraduate Research Fellowship (SURF).

SERVICES

- External Reviewer
- ICLR 2024, NeurIPS 2023, AISTATS 2023

AWARDS & HONORS

- MIT Reitano Fellowship** Sep 2022 – Aug 2023
- CMU Summer Undergraduate Research Fellowship** May 2020 – Aug 2020