

Lichen Zhang

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EDUCATION

Massachusetts Institute of Technology
Ph.D in 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**
- To appear 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**
- To appear in the 40th International Conference on Machine Learning (ICML 2023)
- arxiv link: <https://arxiv.org/pdf/2210.08371.pdf>

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
- To appear 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
• Instructor: Pravesh Kothari and Anil Ada

Jan 2022 – May 2022

CMU 15-455 Undergraduate Complexity Theory
• Instructor: Pravesh Kothari

Jan 2021 – May 2021

EXPERIENCE

Visiting student at Simons Institute for the Theory of Computing

Aug 2023 – Dec 2023

- Data Structures and Optimization for Fast Algorithms program
- Host: Zhao Song

Research scientist intern at Adobe Research

May 2023 – Aug 2023

- Mentor: Ritwik Sinha, Zhao Song, Raghavendra Addanki

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).