Lichen Zhang

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EDUCATION

Massachusetts Institute of Technology Sep. 2022 - May 2027 (expected)
Ph.D in Mathematics, Advisor: Jonathan A. Kelner *Cambridge, MA*

Carnegie Mellon University June 2021 – May 2022
M.S. in Computer Science, Advisor: Gary L. Miller *Pittsburgh, PA*

Carnegie Mellon University Aug. 2017 – May 2021
B.S. in Computer Science *Pittsburgh, PA*

RESEARCH INTERESTS

- Sketching, sampling and streaming.

- Differential privacy.

- Optimization.

EXPERIENCE

Teaching Assistant (Instructor: Pravesh K. Kothari and Anil Ada) Jan 2022 – May 2022
Carnegie Mellon University *Pittsburgh, PA*
- Teaching Assistant for The Computational Lens (15-155) class.

Teaching Assistant (Instructor: Pravesh K. Kothari) Jan 2021 – May 2021
Carnegie Mellon University *Pittsburgh, PA*
- Teaching Assistant for Undergraduate Complexity Theory (15-455) class.

Undergraduate Research Assistant (Advisor: Gary L. Miller) Oct. 2019 – Sep. 2020
Carnegie Mellon University *Pittsburgh, PA*
- Granted under CMU Summer Undergraduate Research Fellowship (SURF).
- Discrete optimization algorithm via ODE perspective.
- Combinatorial graph clustering algorithm breaks Cheeger's bound.

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