

Xiao Mao

(Last update: October 4, 2023)

Phone: +1 617 955 7652
Email: matthew99a@gmail.com
xiaomao@stanford.edu
Website: matthew99a.github.io

Education

- **Stanford University** *2022 to Present*
Ph.D
– Field: Theoretical Computer Science
- **Massachusetts Institute of Technology** *2021 to 2022*
M.Eng.
– Thesis Supervisor: Virginia Vassilevska Williams
- **Massachusetts Institute of Technology** *2017 to 2021*
B.S. in Computer Science and Engineering and in Mathematics

Research and Work Experience

- **Stanford University** *Sep. 2022 to present*
Ph.D. currently advised by Prof. Aviad Rubenstein
– Focus on algorithms and complexity.
- **Massachusetts Institute of Technology** *Sep. 2021 to Sep. 2022*
M.Eng. with thesis supervised by Professor Virginia Vassilevska Williams
– Focus on algorithms and complexity.
- **Massachusetts Institute of Technology** *Feb. 2020 to Dec. 2020*
UROP advised by Professor Michael Sipser
– Research projects on algorithms and complexity. Finished two manuscripts.
- **Microsoft Corporation, Bellevue, WA** *Summer 2019*
Intern
– Studied Hopscotch Hashing and its performance, both theoretical and practical.
- **Pony.ai, Inc., Fremont, CA** *Summer 2018*
Intern
– Migrated the build tool from Bash to a 1000-line standardized Python script with improved functionality.

Publications

- [1] Xiao Mao. Breaking the Cubic Barrier for (Unweighted) Tree Edit Distance. In *Proceedings of the 62nd IEEE Symposium on Foundations of Computer Science (FOCS)*, 2021.
(Machtey Award for Best Student Paper)
- [2] Xiao Mao Mingyang Deng, Ce Jin. Approximating Knapsack and Partition via Dense Subset Sums. In *Proceedings of the 2023 ACM-SIAM Symposium on Discrete Algorithms (SODA)*, 2023.
- [3] Ziqian Zhong Mingyang Deng, Xiao Mao. On Problems Related to Unbounded SubsetSum: A Unified Combinatorial Approach. In *Proceedings of the 2023 ACM-SIAM Symposium on Discrete Algorithms (SODA)*, 2023.
- [4] Xiao Mao. $(1 - \epsilon)$ -approximation of knapsack in nearly quadratic time, 2023. arXiv:2308.07004.
- [5] Xiao Mao. Fully-dynamic all-pairs shortest paths: Likely optimal worst-case update time, 2023. arXiv:2306.02662.

Older Manuscripts

- [1] Xiao Mao. Shortest non-separating st-path on chordal graphs. 2020
- [2] Xiao Mao. A natural extension to the convex hull problem and a novel solution. 2020

Selected Awards and Scholarships

- **45th ICPC World Finals1** *November 2022*
Gold medal, **1st place**
- **FOCS 2021** *2021*
Best Student Paper (Machtey Award)
- **International Olympiad in Informatics** *July to August 2017*
Silver medal
- **National Olympiad in Informatics, China** *July 2016*
Gold medal, 1st place

Talks

- **Breaking the Cubic Barrier for (Unweighted) Tree Edit Distance**
– FOCS 2021 *Feb 2022*
– Yao Class seminar *Sep 2021*
- **Approximating Knapsack and Partition via Dense Subset Sums**
– SODA 2023 *Jan 2023*

Service

- Conference Reviewing: ITCS 2022, SWAT 2022, MCFS 2022, SODA 2024