Xiao Mao

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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 Prof. 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