Renfei Zhou

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Education

Carnegie Mellon University 2024–Present
Ph.D. in Computer Science co-advised by William Kuszmaul and Guy Blelloch

Tsinghua University 2020–2024
B.Eng. in Computer Science, Yao Class, Institute for Interdisciplinary Information Sciences
- Thesis: Time Lower Bounds for Classical Open-Addressing

Selected Publications

Authors are in alphabetical order.

Optimal Non-Oblivious Open Addressing
Michael A. Bender, William Kuszmaul, **Renfei Zhou**. In *Proc. STOC*, 2025.

Optimal Static Dictionary with Worst-Case Constant Query Time
Yang Hu, Jingxun Liang, Huacheng Yu, Junkai Zhang, **Renfei Zhou**. In *Proc. STOC*, 2025.

More Asymmetry Yields Faster Matrix Multiplication
Josh Alman, Ran Duan, Virginia Vassilevska Williams, Yinzhan Xu, Zixuan Xu, **Renfei Zhou**. In *Proc. SODA*, 2025.

Tight Bounds and Phase Transitions for Incremental and Dynamic Retrieval
William Kuszmaul, Aaron Putterman, Tingqiang Xu, Hangrui Zhou, **Renfei Zhou**. In *Proc. SODA*, 2025.

Tight Bounds for Classical Open Addressing
Michael A. Bender, William Kuszmaul, **Renfei Zhou**. In *Proc. FOCS*, 2024.

Dynamic Dictionary with Subconstant Wasted Bits per Key
Tianxiao Li, Jingxun Liang, Huacheng Yu, **Renfei Zhou**. In *Proc. SODA*, 2024.

New Bounds for Matrix Multiplication: From Alpha to Omega
Virginia Vassilevska Williams, Yinzhan Xu, Zixuan Xu, **Renfei Zhou**. In *Proc. SODA*, 2024.
Covered in Quanta Magazine.

Faster Matrix Multiplication via Asymmetric Hashing
Ran Duan, Hongxun Wu, **Renfei Zhou**. In *Proc. FOCS*, 2023.
Covered in Quanta Magazine.

Dynamic "Succincter"
Tianxiao Li, Jingxun Liang, Huacheng Yu, **Renfei Zhou**. In *Proc. FOCS*, 2023.

Tight Cell-Probe Lower Bounds for Dynamic Succinct Dictionaries
Tianxiao Li, Jingxun Liang, Huacheng Yu, **Renfei Zhou**. In *Proc. FOCS*, 2023.
Covered in Quanta Magazine.

Other Publications

Authors are in alphabetical order.

Bidder Selection Problem in Position Auctions: A Fast and Simple Algorithm via Poisson Approximation
Nick Gravin, Yixuan Even Xu, **Renfei Zhou**. In *Proc. ACM Web Conference (WWW)*, 2024. **Oral.**

Listing 6-Cycles
Ce Jin, Virginia Vassilevska Williams, **Renfei Zhou**. In *Proc. SOSA*, 2024.

On the Perturbation Function of Ranking and Balance for Weighted Online Bipartite Matching
Jingxun Liang, Zhihao Gavin Tang, Yixuan Even Xu, Yuhao Zhang, **Renfei Zhou**. In *Proc. ESA*, 2023.

Selected Awards and Scholarships

- **Jane Street Graduate Research Fellowship** 2025
- **MongoDB PhD Fellowship** 2025
- **Outstanding Bachelor Thesis Award (Tsinghua University)** 2024
  Awarded to 4 students in Yao Class each year
- **China National Scholarship** 2023
  Awarded to 4–5 students in Yao Class each year
- **Yao Award (Silver Medal)** 2023
  Awarded to 3 students in Yao Class each year
- **China Collegiate Programming Contest Finals** 2021
  Gold award, 3rd place (with teammates Yixuan Even Xu and Binwei Yan)
- **ACM International Collegiate Programming Contest, Asia Regional Contest, Jinan Site** 2020
  Gold medal, 1st place (with teammates Binwei Yan and Zheyu Zhang)
- **International Olympiad in Informatics China Team Selection** 2020
  5th place
- **China National Olympiad in Informatics** 2019
  Gold medal, 11th place

Service

- Conference reviewing: SODA (2024, 2025), FOCS 2024, STOC 2025, ICALP 2024, ISAAC 2024
- **Randomized Algorithms (CMU)** Fall 2024
  Teaching assistant (Instructor: William Kuszmaul)
- **Yao Class Research Seminar** 2023–2024
  Co-organizer; invited speaker
- **Yao Class Course-Review Seminar** 2020–2023
  Co-organizer; main speaker for multiple courses
- **Theory of Computation (Tsinghua University)** Spring 2022
  Teaching assistant (Instructor: Ran Duan)

Research Visits

- **Massachusetts Institute of Technology** Spring 2023
  Visiting student advised by Virginia Vassilevska Williams
- **Shanghai University of Finance and Economics** Summer 2021
  Summer research internship, advised by Zhihao Gavin Tang