

Renfei Zhou

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EDUCATION

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

Frontiers of Science Awards	2025
Awarded by the International Congress of Basic Science	
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	

SELECTED PUBLICATIONS

Authors are in alphabetical order.

[Succinct Dynamic Rank/Select: Bypassing the Tree-Structure Bottleneck](#)

William Kuszmaul, Jingxun Liang, **Renfei Zhou**. In *Proc. SODA*, 2026.

[Fingerprint Filters are Optimal](#)

William Kuszmaul, Jingxun Liang, **Renfei Zhou**. In *Proc. FOCS*, 2025.

[Static Retrieval Revisited: To Optimality and Beyond](#)

Yang Hu, William Kuszmaul, Jingxun Liang, Huacheng Yu, Junkai Zhang, **Renfei Zhou**. In *Proc. FOCS*, 2025.

[Optimal Static Fully Indexable Dictionaries](#)

Jingxun Liang and **Renfei Zhou**. In *Proc. ICALP*, 2025.

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 Puterman, 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](#); Frontiers of Science Award 2025.

Faster Matrix Multiplication via Asymmetric Hashing

Ran Duan, Hongxun Wu, **Renfei Zhou**. In *Proc. FOCS*, 2023.

Covered in [Quanta Magazine](#); Frontiers of Science Award 2025.

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.

SERVICE

- Conference reviewing: SODA (2024, 2025, 2026), FOCS 2024, STOC 2025, ICALP 2024, ISAAC 2024, SOSA 2026
- Journal reviewing: Algorithmica (2025)
- **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