

# Renfei Zhou

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## EDUCATION

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<b>Carnegie Mellon University</b> Ph.D. in Computer Science co-advised by <a href="#">William Kuszmaul</a> and <a href="#">Guy E. Blelloch</a>	2024–Present
<b>Tsinghua University</b> B.Eng. in Computer Science, Yao Class, Institute for Interdisciplinary Information Sciences • Thesis: Time Lower Bounds for Classical Open-Addressing	2020–2024

## SELECTED AWARDS AND FELLOWSHIPS

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

## SELECTED PUBLICATIONS

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*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 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](#); 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

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*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. SODA*, 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

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|---|-----------|
| • <b>Concurrent Data Structures Workshop (NYU Tandon)</b><br>Organizer                      | 01/2026   |
| • <b>Princeton Workshop on Data Structures</b><br>Co-organizer                              | 04/2025   |
| • <b>Randomized Algorithms (CMU)</b><br>Teaching assistant (Instructor: William Kuszmaul)   | Fall 2024 |
| • <b>Yao Class Research Seminar</b><br>Co-organizer; invited speaker                        | 2023–2024 |
| • <b>Yao Class Course-Review Seminar</b><br>Co-organizer; main speaker for multiple courses | 2020–2023 |

- **Theory of Computation (Tsinghua University)** Spring 2022  
Teaching assistant (Instructor: Ran Duan)
- **Conference Reviewing:** SODA (2024, 2025, 2026), FOCS 2024, STOC 2025, ICALP 2024, ISAAC 2024, SODA 2026
- **Journal Reviewing:** Algorithmica (2025)

## RESEARCH VISITS

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- **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