

# Renfei Zhou

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Last Update: February 6, 2026

## EDUCATION

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<b>Carnegie Mellon University</b>	2024–Present
Ph.D. in Computer Science co-advised by <a href="#">William Kuszmaul</a> and <a href="#">Guy E. Blelloch</a>	
<b>Tsinghua University</b>	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

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

## 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](#).

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## 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.

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## SERVICE

- Concurrent Data Structures Workshop (NYU Tandon) 01/2026  
Organizer
- Princeton Workshop on Data Structures 04/2025  
Co-organizer
- 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)
- **Conference Reviewing:** SODA (2024, 2025, 2026), FOCS 2024, STOC 2025, ICALP 2024, ISAAC 2024, SOSA 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