

# Renfei Zhou

5529 Fifth Ave, Apt 6, Pittsburgh, PA, USA 15232

[renfeiz@andrew.cmu.edu](mailto:renfeiz@andrew.cmu.edu) <https://orbitingflea.github.io>

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