HONGXUN WU

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EDUCATION

Ph.D. Student, EECS, **UC Berkeley** August 2022 - Present

- Advisors: Jelani Nelson and Avishay Tal
- Research Area: Theoretical Computer Science

B.Eng., **Tsinghua University** August 2018 - July 2022

- Yao Class, Institute for Interdisciplinary Information Sciences

VISITING

Microsoft Research Redmond Summer 2025

- Research intern mentored by Janardhan Kulkarni.
- *Topic: LLM Reasoning*

Massachusetts Institute of Technology Spring 2021

- Visiting student (online) advised by Ryan Williams.
- *Topic: Space complexity*

ITCS, Shanghai University of Finance and Economics Summer 2020 & 2021

- Visiting student advised by Zhihao Gavin Tang, Hu Fu, Pinyan Lu.
- *Topic: Prophet Inequalities*

BARC, University of Copenhagen Summer 2019

- Visiting student advised by Mikkel Thorup.
- *Topic: Graph algorithms*

AWARDS AND SCHOLARSHIPS

National Olympics in Informatics July 2017
Gold Medal, 5th place in China

Yao Award October 2021
Gold Medal (award for the top graduate of the Yao Class)

Berkeley Fellowship September 2022

Jane Street Graduate Research Fellowship February 2025

PUBLICATIONS

(In theoretical computer science, the authors are listed in alphabetical order.)

Lijie Chen, Binghui Peng, and Hongxun Wu. **Theoretical limitations of multi-layer Transformer**. In *66th IEEE Symposium on Foundations of Computer Science, FOCS 2025*

Elena Gribelyuk, Pachara Sawettamalya, Hongxun Wu, and Huacheng Yu. **Near-Optimal Relative Error Streaming Quantile Estimation via Elastic Compactors**. In *Press, Accepted by the 35th Annual ACM-SIAM Symposium on Discrete Algorithms, SODA 2025*

Moses Charikar, Prasanna Ramakrishnan, Kangning Wang, and Hongxun Wu. **Breaking the Metric Voting Distortion Barrier**. In *Proceedings of the 35th Annual ACM-SIAM Symposium on Discrete Algorithms, SODA 2024,* **Best Paper Award**

Xin Lyu, Hongxun Wu, and Junzhao Yang. **The Cost of Parallelizing Boosting**. In *Proceedings of the 35th Annual ACM-SIAM Symposium on Discrete Algorithms, SODA 2024*

Mihir Singhal, Meghal Gupta, and Hongxun Wu. **Optimal Quantile Estimation: Beyond the Comparison Model**. In *65th IEEE Symposium on Foundations of Computer Science, FOCS 2024,* **Best Student Paper Award**

Ce Jin and Hongxun Wu. **A Faster Algorithm for Pigeonhole Equal Sums** . In *51th International Colloquium on Automata, Languages, and Programming, ICALP 2024,* **Best Student Paper Award**

Hu Fu, Pinyan Lu, Zhihao Gavin Tang, Hongxun Wu, Jinzhao Wu, and Qianfan Zhang. **Sample-Based Matroid Prophet Inequalities**. In *Proceedings of the ACM conference on Economics and Computation, EC 2024*

Elena Gribelyuk, Pachara Sawettamalya, Hongxun Wu, and Huacheng Yu. **Simple & Optimal Quantile Sketch: Combining Greenwald-Khanna with Khanna-Greenwald**. In *Proceedings of the ACM on Management of Data, PODS 2024*

Xin Lyu, Avishay Tal, Hongxun Wu, and Junzhao Yang. **Tight Time-Space Lower Bounds for Constant-Pass Learning**. In *64th IEEE Symposium on Foundations of Computer Science, FOCS 2023*

Lijie Chen, William Hoza, Xin Lyu, Avishay Tal, and Hongxun Wu. **Weighted Pseudorandom Generators via Inverse Analysis of Random Walks and Shortcutting**. In *64th IEEE Symposium on Foundations of Computer Science, FOCS 2023*

Ran Duan, Hongxun Wu, and Renfei Zhou. **Faster Matrix Multiplication via Asymmetric Hashing**. In *64th IEEE Symposium on Foundations of Computer Science, FOCS 2023*

Lijie Chen, Xin Lyu, Avishay Tal, and Hongxun Wu. **New PRGs for Unbounded-Width/Adaptive-Order Read-Once Branching Programs**. In *50th International Colloquium on Automata, Languages, and Programming, ICALP 2023*

Zhihao Gavin Tang, Hongxun Wu, and Jinzhao Wu. **(Fractional) Online Stochastic Matching via Fine-Grained Offline Statistics**. In *54th Annual ACM Symposium on Theory of Computing, STOC 2022*

Lijie Chen, Ce Jin, R. Ryan Williams, and Hongxun Wu. **Truly Low-Space Element Distinctness and Subset Sum via Pseudorandom Hash Functions**. In *Proceedings of the 33rd Annual ACM-SIAM Symposium on Discrete Algorithms, SODA 2022*

Hu Fu, Pinyan Lu, Zhihao Gavin Tang, Abner Turkieltaub, Hongxun Wu, Jinzhao Wu, and Qianfan Zhang. **Oblivious Online Contention Resolution Schemes**. In *5th Symposium on Simplicity in Algorithms, SOSA 2022*

Hu Fu, Zhihao Gavin Tang, Hongxun Wu, Jinzhao Wu, and Qianfan Zhang. **Random Order Vertex Arrival Contention Resolution Schemes for Matching, with Applications**. In *48th International Colloquium on Automata, Languages, and Programming, ICALP 2021*

Kyriakos Axiotis, Arturs Backurs, Karl Bringmann, Ce Jin, Vasileios Nakos, Christos Tzamos, and Hongxun Wu. **Fast and Simple Modular Subset Sum**. In *4th Symposium on Simplicity in Algorithms, SOSA 2021*

Hongxun Wu. **Near-Optimal Algorithm for Constructing Greedy Consensus Tree**. In *47th International Colloquium on Automata, Languages, and Programming, ICALP 2020*

Ran Duan, Ce Jin, and Hongxun Wu. **Faster Algorithms for All Pairs Non-Decreasing Paths Problem**. In *46th International Colloquium on Automata, Languages, and Programming, ICALP 2019*

Kyriakos Axiotis, Arturs Backurs, Ce Jin, Christos Tzamos, and Hongxun Wu. **Fast Modular Subset Sum using Linear Sketching**. In *Proceedings of the 30th Annual ACM-SIAM Symposium on Discrete Algorithms, SODA 2019*

Ce Jin and Hongxun Wu. **A Simple Near-Linear Pseudopolynomial Time Randomized Algorithm for Subset Sum**. In *2nd Symposium on Simplicity in Algorithms, SOSA 2019*

TEACHING EXPERIENCES

Co-Instructor, UC Berkeley Summer 2024
CS 70 Discrete Mathematics
Teaching Assistant, UC Berkeley Spring 2024
CS 278 Graduate Complexity Theory (Instructor: Avishay Tal)
Teaching Assistant, UC Berkeley Fall 2023
CS 70 Discrete Mathematics (Instructor: Satish Rao, Avishay Tal)
Teaching Assistant, Tsinghua Spring 2022
Fundamentals of Cryptography (Instructor: Yilei Chen)
Teaching Assistant, Tsinghua Fall 2021
Algorithm Design (Instructor: Jian Li)

SERVICES

Conference Reviewing: SODA 2021, ICALP 2022, SOSA 2023, CCC 2023, FOCS 2023, IPEC 2023, STOC 2024, PODS 2024, FOCS 2024, SODA 2025, ITCS 2025, FOCS 2025, SODA 2026
Journal Reviewing: ACM Transactions on Algorithms