

POSITIONS	Department of Computer Science, University of Chicago <i>Chicago Prize Postdoctoral Fellow</i> <ul style="list-style-type: none"> • Host: Bill Fefferman 	Chicago, IL, USA 2023 - 2025 (<i>expected</i>)
EDUCATION	Department of Computer Science, Princeton University <i>Ph.D. in Computer Science</i> <ul style="list-style-type: none"> • Advisor: Ran Raz • Dissertation: Randomness and Quantumness in Space-Bounded Computation IIIS, Tsinghua University <i>B.S. in Computer Science</i>	Princeton, NJ, USA 2017 - 2023 Beijing, China 2013 - 2017
RESEARCH INTEREST	Theoretical computer science, complexity theory and quantum computing.	
AWARDS & HONORS	<ul style="list-style-type: none"> • Francis Robbins Upton Fellowship, Princeton University • Yao Award, Tsinghua University • Best Newcomer Award, ICDT • National Scholarship, Tsinghua University • Gold Medal, China Mathematical Olympiad 	2017 - 2022 2017 2017 2016 2013
PUBLICATIONS	<ol style="list-style-type: none"> 1. Huacheng Yu, Wei Zhan. Sampling, Flowers and Communication. <i>In 15th Innovations in Theoretical Computer Science Conference (ITCS 2024)</i> 2. Huacheng Yu, Wei Zhan. Randomized vs. Deterministic Separation in Time-Space Trade-offs of Multi-Output Functions. <i>In 15th Innovations in Theoretical Computer Science Conference (ITCS 2024)</i> 3. Uma Girish, Ran Raz, Wei Zhan. Quantum Logspace Computations are Verifiable. <i>In 2024 Symposium on Simplicity in Algorithms (SOSA 2024)</i> 4. Edward Pyne, Ran Raz, Wei Zhan. Certified Hardness vs. Randomness for Log-Space. <i>In 64th IEEE Annual Symposium on Foundations of Computer Science (FOCS 2023)</i> 5. Qipeng Liu, Ran Raz, Wei Zhan. Memory-Sample Lower Bounds for Learning with Classical-Quantum Hybrid Memory. <i>In 26th Annual Conference on Quantum Information Processing (QIP 2023)</i> <i>In 55th Annual ACM Symposium on Theory of Computing (STOC 2023)</i> 6. Uma Girish, Ran Raz, Wei Zhan. Is Untrusted Randomness Helpful? <i>In 14th Innovations in Theoretical Computer Science Conference (ITCS 2023)</i> 7. Uma Girish, Kunal Mittal, Ran Raz, Wei Zhan. Polynomial Bounds on Parallel Repetition for All 3-Player Games with Binary Inputs. <i>In 26th International Conference on Randomization and Computation (RANDOM 2022)</i> Invited to Special Issue of ToC for RANDOM'22 8. Uma Girish, Justin Holmgren, Kunal Mittal, Ran Raz, Wei Zhan. Parallel Repetition for all 3-Player Games over Binary Alphabet. <i>In 54th Annual ACM Symposium on Theory of Computing (STOC 2022).</i> 9. Uma Girish, Ran Raz, Wei Zhan. Quantum Logspace Algorithm for Powering Matrices with Bounded Norm. <i>In 24th Annual Conference on Quantum Information Processing (QIP 2021)</i> 	

In *48th International Colloquium on Automata, Languages, and Programming (ICALP 2021)*

10. Uma Girish, Ran Raz, **Wei Zhan**. Lower Bounds for XOR of Forrelations.
In *25th International Conference on Randomization and Computation (RANDOM 2021)*
11. Uma Girish, Justin Holmgren, Kunal Mittal, Ran Raz, **Wei Zhan**. Parallel Repetition for the GHZ Game: A Simpler Proof.
In *25th International Conference on Randomization and Computation (RANDOM 2021)*
12. Ran Raz and Wei Zhan. The Random-Query Model and the Memory-Bounded Coupon Collector.
In *11th Innovations in Theoretical Computer Science Conference (ITCS 2020)*
13. Yifei Jin, Jian Li, **Wei Zhan**. Odd Yao-Yao Graphs are not Spanners.
In *34th International Symposium on Computational Geometry (SoCG 2018)*
14. Yi-Jun Chang, Tsvi Kopelowitz, Seth Pettie, Ruosong Wang, **Wei Zhan**. Exponential Separations in the Energy Complexity of Leader Election.
In *49th ACM Symposium on Theory of Computing (STOC 2017)*
In *ACM Transactions on Algorithms, Vol. 15, No. 4 (2019)*
15. Zhiyuan Li, Yicheng Liu, Pingzhong Tang, Tingting Xu, **Wei Zhan**. Stability of Generalized Two-sided Markets with Transaction Thresholds.
In *16th Conference on Autonomous Agents and MultiAgent Systems (AAMAS 2017)*
16. Wei Cao, Jian Li, Haitao Wang, Kangning Wang, Ruosong Wang, Raymond Chi-Wing Wong, **Wei Zhan**. k -Regret-Minimizing Sets: Hardness and Efficient Algorithms.
In *20th International Conference on Database Theory (ICDT 2017)*
17. Jian Li, **Wei Zhan**. Almost All Even Yao-Yao Graphs Are Spanners.
In *24th Annual European Symposium on Algorithms (ESA 2016)*

PREPRINTS

1. Bill Fefferman, Soumik Ghosh, **Wei Zhan**. Anti-Concentration for the Unitary Haar Measure and Applications to Random Quantum Circuits.
In *arXiv preprint arXiv:2407.19561 (2024)*
2. **Wei Zhan**. Universality for Doubly Stochastic Matrices.
In *arXiv preprint arXiv:2010.16257 (2020)*

TALKS

Learning Random Brickwork Quantum Circuits

- Theory Seminar, UCSD Mar 2024

Randomized vs. Deterministic Separation in Time-Space Tradeoffs of Multi- Output Functions & Sampling, Flowers and Communication

- ITCS, Berkeley Feb 2024

Quantum Logspace Computations are Verifiable

- SOSA, Alexandria Jan 2024

Is Untrusted Randomness Helpful?

- ITCS, Boston Jan 2023

Memory-Sample Lower Bounds for Learning with Classical-Quantum Hybrid Memory

- QIP, Ghent Feb 2023
- Theory Lunch, Princeton Dec 2022

Parallel Repetition for All 3-Player Games over Binary Alphabet (& with Binary Inputs)

- RANDOM, online Sep 2022
- Theory Seminar, Cornell Aug 2022
- STOC, Rome Jun 2022
- Theory Seminar, NJU Feb 2022

Quantum Logspace Algorithm for Powering Matrices with Bounded Norm

	<ul style="list-style-type: none"> • ICALP, online 	Jul 2021
	<ul style="list-style-type: none"> • Quantum Computing Seminar, GMU 	Feb 2021
	Universality for Doubly Stochastic Matrices	
	<ul style="list-style-type: none"> • Student Theory Day, Princeton 	Mar 2021
	The Random-Query Model and the Memory-Bounded Coupon Collector	
	<ul style="list-style-type: none"> • ITCS, Seattle 	Jan 2020
	k-Regret-Minimizing Sets: Hardness and Efficient Algorithms	
	<ul style="list-style-type: none"> • ICDT, Venice 	Mar 2017
	Almost All Even Yao-Yao Graphs Are Spanners	
	<ul style="list-style-type: none"> • ESA, Aarhus 	Aug 2016
TEACHING	Princeton University:	
	TA for COS 585: Information Theory and Applications	Spring 2022
	TA for COS 445: Economics and Computation	Spring 2020
	TA for COS 340: Reasoning about Computation	Spring 2019
OTHER RESEARCH EXPERIENCE	Simons Institute for the Theory of Computing	Berkeley, CA, USA
	<i>Visiting Postdoc</i>	Jan - Mar 2024
	<ul style="list-style-type: none"> • Program: Quantum Algorithms, Complexity, and Fault Tolerance 	
	Department of EECS, University of Michigan	Ann Arbor, MI, USA
	<i>Visitor</i>	Feb - Jun 2016
	<ul style="list-style-type: none"> • Host: Seth Pettie 	
SERVICES	Conference Reviews: STOC, FOCS, CCC, SODA, ITCS, QIP, TQC, SoCG, ICALP, STACS, ESA	
	Journal Reviews: <i>SIAM Journal on Computing</i>	