

Pei Wu  
Department of Computer Science  
*Weizmann Institute of Science*

## Research Interests

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I am broadly interested in theoretical computer science. My recent focus is computational complexity theory and Boolean function analysis.

## Positions

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2023-PRESENT WEIZMANN INSTITUTE OF SCIENCE

*Postdoctoral*

*Supervisor: Thomas Vidick*

SUMMER, 2023 SIMONS INSTITUTE FOR THE THEORY OF COMPUTING

*Research Fellow*

*Program: Beyond the Boolean Cube*

2021-2023 INSTITUTE FOR ADVANCED STUDY

*Postdoctoral member*

*Supervisor: Avi Wigderson*

## Education

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2015-2021 UNIVERSITY OF CALIFORNIA, LOS ANGELES

*Ph.D., Computer Science*

*Thesis title: Communication and Computation*

*Advisor: Alexander Sherstov*

2013-2015 DARTMOUTH COLLEGE

*M.S., Computer Science*

*Thesis advisor: Amit Chakrabarti*

2009-2013 NANJING UNIVERSITY, CHINA

*Bachelor of Science, Computer Science and Technology*

*GPA: 89/100*

## **Publications**

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***Optimal interactive coding for insertions, deletions, and substitutions***

A. A. Sherstov, P. Wu

The 58th Annual Symposium on Foundations of Computer Science (FOCS 2017)

*IEEE Transactions on Information Theory*, 65(10):5971–6000, 2019

***Near-optimal lower bounds on the threshold degree and sign-rank of  $AC^0$***

A. A. Sherstov, P. Wu

The 51st ACM Symposium on Theory of Computing (STOC 2019)

*Invited to appear in SIAM Journal on Computing (special issue for STOC 2019)*

***An optimal separation of randomized and quantum query complexity***

A. A. Sherstov, A. A. Storozhenko, P. Wu

The 53rd ACM Symposium on Theory of Computing (STOC 2021)

***An optimal “it ain’t over till it’s over” theorem***

R. Eldan, A. Wigderson, P. Wu

The 55th ACM Symposium on Theory of Computing (STOC 2023)

***The power of unentangled proofs with non-negative amplitudes***

F. G. Jeronimo, P. Wu

The 55th ACM Symposium on Theory of Computing (STOC 2023)

***Dimension independent disentanglers from unentanglement and applications***

F. G. Jeronimo, P. Wu

Manuscript

***Subset states and Pseudorandom States***

F. G. Jeronimo, N. Magrafta, P. Wu

Manuscript

**Speaking Engagements**

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***“The power of unentangled quantum proofs with non-negative amplitudes”***

4/2023    Quantum Colloquium, Simons Institute, Berkeley, CA

5/2023    Quantum Seminar, University of Texas Austin, TX

5/2023    Theory Seminar, Nanjing University, China

***“Polynomial method in communication complexity”***

11/2022    CS/DM Seminar, Institute for Advanced Study, Princeton, NJ

***“Random restrictions on Boolean functions with small influences”***

09/2022    Theory Lunch, Princeton University, Princeton, NJ

09/2022    Shandong University, China

10/2022    Nanjing University, China

10/2022    DIMACS & Rutgers University, New Brunswick, NJ

11/2022    Discrete math seminar, Princeton University, Princeton, NJ

***“It ain’t over till it’s over”***

09/2022    Member’s short talk, Institute for Advanced Study, Princeton, NJ

***“Recent progress on query complexity”***, two lectures

10/2021    CS/DM Seminar, Institute for Advanced Study, Princeton, NJ

***“Black cats, white cats, and Schrödinger’s cats”***

09/2021    Member’s short talk, Institute for Advanced Study, Princeton, NJ

*“Optimal separation of randomized and quantum query complexity”*

02/2021 QIP 2021, online

04/2021 Algorithm and Complexity Seminar (online), Waterloo University, Canada

06/2021 STOC 2021, online

*“Settling the threshold degree and sign rank of  $AC^0$ ”*

02/2020 Invited plenary talk, Southern California theory day, UC Riverside, California

*“Near-optimal lower bounds on the threshold degree and sign rank of  $AC^0$ ”*

07/2019 STOC 2019, June 23-26, 2019 in Phoenix, Arizona

*“Optimal interactive coding for insertions, deletions, and substitutions”*

10/2017 FOCS 2017, October 15-17, 2017 in Berkeley, California

**Awards**

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01/2020 Special issue invitation from SIAM Journal on Computing, for STOC 2019 paper “Near-Optimal Lower Bounds on the Threshold Degree and Sign-rank of  $AC^0$ ”

06/2020 Outstanding Graduate Student Research Award (Computer Science Department, UCLA)

10/2020 Dissertation Year Fellowship (Graduate Division, UCLA)

**Other Services**

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Conference/journal review: ICALP, STOC/FOCS, CCC, Algorithmica, SICOMP, TIT, Quantum

Teaching assistant: CS 31 (Algorithms at Dartmouth College), CS 181 (Formal Language and Automata Theory at UCLA)