

Pei Wu
Department of Computer Science
Weizmann Institute of Science

Research Interests

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

Positions

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

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

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

Speaking Engagements

"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

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

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)