Hadley Black

Assistant Professor
CUNY Baruch College, NYC
Department of Mathematics

Office: VC 6-293
email: hadley.black@baruch.cuny.edu
homepage: hablack.github.io

Positions

2026-Present Assistant Professor
Department of Mathematics, *CUNY Baruch College*

2023-2025 Postdoctoral Researcher
UC San Diego, Department of Computer Science and the EnCORE Institute
Adviser: Barna Saha

Education

2023 PhD in Computer Science, *UCLA*
Adviser: Raghu Meka

- *Thesis:* Testing and Learning in High-Dimensions: Monotonicity Testing, Directed Isoperimetry, and Convex Sets

2018 MS in Computer Science, *UC Santa Cruz*
Adviser: C. Seshadhri.

2016 BA in Computer Science, *UC Santa Cruz*
2016 BA in Pure Mathematics, *UC Santa Cruz*

- Graduated with highest honors in both majors
- *GPA:* 3.91 - *Magna Cum Laude*

Publications

2026 Hadley Black, Kasper Green Larsen, Arya Mazumdar, Barna Saha, Geelon So.
Actively Learning Halfspaces without Synthetic Data.
Preprint.

2026 Hadley Black, Christopher Ye
Distribution Testing in the Presence of Arbitrarily Dominant Noise with Verification Queries.
In *Symposium on Discrete Algorithms* (**SODA**), 2026.

2025 Hadley Black, Arya Mazumdar, Barna Saha, Yinzhan Xu
Optimal Graph Reconstruction by Counting Connected Components in Induced Subgraphs.
In *Conference on Learning Theory* (**COLT**), 2025.

2024 Hadley Black, Arya Mazumdar, Barna Saha
Learning Partitions with Optimal Query and Round Complexities.
In *Conference on Learning Theory* (**COLT**), 2025.

2024 Hadley Black, Euiwoong Lee, Arya Mazumdar, Barna Saha
Clustering with Non-adaptive Subset Queries.
In *Neural Information Processing Systems* (**NeurIPS**), 2024.

2023 Hadley Black.
Nearly Optimal Bounds for Sample-Based Testing and Learning of k-Monotone Functions.
In *International Conference on Randomization and Computation* (**RANDOM**), 2024.

2023 Hadley Black, Eric Blais, Nathaniel Harms.
Testing and Learning Convex Sets in the Ternary Hypercube.
In *Innovations in Theoretical Computer Science* (**ITCS**), 2024.

2023 Hadley Black, Deeparnab Chakrabarty, C. Seshadhri.
A $d^{1/2+o(1)}$ Monotonicity Tester for Boolean Functions on d-Dimensional Hypergrids.
In *SIAM Journal on Computing* (**SICOMP**), 2025.
In *Foundations of Computer Science* (**FOCS**), 2023. Invited to **SICOMP** Special Issue.

2022 Hadley Black, Deeparnab Chakrabarty, C. Seshadhri.
Directed Isoperimetric Theorems for Boolean Functions on the Hypergrid and an $\widetilde{O}(n\sqrt{d})$ Monotonicity Tester.
In *Symposium on Theory of Computing* (**STOC**), 2023.

2020 Hadley Black, Iden Kalemaj, Sofya Raskhodnikova.
Isoperimetric Inequalities for Real-Valued Functions with Applications to Monotonicity Testing.
In *Random Structures and Algorithms* (**RSA**), 2024.
In *International Colloquium on Automata, Languages, and Programming* (**ICALP**), 2023.

2019 Hadley Black, Deeparnab Chakrabarty, C. Seshadhri.
Domain Reduction for Monotonicity Testing: A $o(d)$ Tester for Boolean Functions in d-Dimensions.
In *Symposium on Discrete Algorithms* (**SODA**), 2020.

2018 Hadley Black, Deeparnab Chakrabarty, C. Seshadhri.
A $o(d)\cdot$polylog n Monotonicity Tester for Boolean Functions over the Hypergrid $[n]^d$.
In *Symposium on Discrete Algorithms* (**SODA**), 2018.

Honors and Awards

2019-2020 Computer Science Department Fellowship Recipient, UCLA.
2018-2019 Samueli Fellowship Recipient, UCLA.
Spring 2017 Regent's Fellowship Recipient, UC Santa Cruz.
2016 Porter College Leadership and Community Service Award, UC Santa Cruz.

Additional Research Experience

Summ 2021 Visiting Graduate Student, *University of Waterloo*, with Prof. Eric Blais
Summ 2020 Visiting Graduate Student, *Boston University*, with Prof. Sofya Raskhodnikova
Summ 2015 Guest Researcher at *DIMACS REU Program*, *Rutgers University*
Selected participant in *DIMACS/DIMATIA Exchange Program*

Teaching

Spring 2026 Professor - MTH 4320, *Fundamental Algorithms*, CUNY Baruch College
Spring 2026 Professor - MTH 4360, *Complexity & Computational Models*, CUNY Baruch College
Spring 2023 Teaching Assistant - CS 260B, *Algorithmic Machine Learning*, UCLA
Fall 2022 Teaching Assistant - CS 181, *Introduction to Theoretical Computer Science*, UCLA
Winter 2022 Teaching Assistant - CS 181, *Introduction to Formal Languages and Automata Theory*, UCLA
Fall 2021 Teaching Assistant - CS 181, *Introduction to Theoretical Computer Science*, UCLA
Spring 2021 Teaching Assistant - CS 32, *Introduction to Computer Science II*, UCLA
Winter 2021 Teaching Assistant - CS 32, *Introduction to Computer Science II*, UCLA
Fall 2020 Teaching Assistant - CS 181, *Introduction to Theoretical Computer Science*, UCLA
Spring 2020 Teaching Assistant - CS 180, *Introduction to Algorithms and Complexity*, UCLA
Fall 2017 Teaching Assistant - CMPS 12B, *Introduction to Data Structures*, UC Santa Cruz
Fall 2015 MSI Learning Assistant - CMPS 101, *Algorithms and Abstract Data Types*, UC Santa Cruz
2014 - 2016 MSI Learning Assistant - CMPE 16, *Discrete Mathematics*, UC Santa Cruz
2014 Mathematics Tutor - *Calculus, Trigonometry, and Algebra*, Santa Rosa Junior College

Professional Service

Program committee member - ITCS 2025
Junior program committee member - COLT 2025, COLT 2026
External journal reviewer - TOCT 2018, SIDMA 2018, TCS 2024, Annals of Probability 2026
External conference reviewer - SOSA 2020, SODA 2021, ICALP 2021, ICALP 2022, FOCS 2022, FOCS 2023, STOC 2024, FORC 2024, FOCS 2024, SODA 2025, STOC 2025, RANDOM 2025, NeurIPS 2025, SODA 2026, STACS 2026, STOC 2026