

Hadley Black

Postdoctoral Researcher in Computer Science

University of California, San Diego

EnCORE Institute

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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, Yinzhao 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 $\tilde{O}(n\sqrt{d})$ 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 $o(d) \cdot \text{polylog } n$ Monotonicity Tester for Boolean Functions over the Hypergrid $[n]^d$.
In *Symposium on Discrete Algorithms (SODA)*, 2018.

Honors and Awards

- 2023 Student Travel Award, FOCS 2023.
2023 Student Travel Award, STOC 2023.

2020	SIAM Student Travel Award, SODA 2020.
2019-2020	Computer Science Department Fellowship Recipient, UCLA.
2018-2019	Samueli Fellowship Recipient, UCLA.
2018	SIAM Student Travel Award, SODA 2018.
Spring 2017	Regent's Fellowship Recipient, UC Santa Cruz.
	Porter College Leadership and Community Service Award, UC Santa Cruz.
	Dean's Honors, UC Santa Cruz - all terms attended.

Additional Research Experience

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

Teaching

Spring 2023	Teaching Assistant - CS 260B, <i>Algorithmic Machine Learning</i> , UCLA
Fall 2022	Teaching Assistant - CS 181, <i>Introduction to Theoretical Computer Science</i> , UCLA
Winter 2022	Teaching Assistant - CS 181, <i>Introduction to Formal Languages and Automata Theory</i> , UCLA
Fall 2021	Teaching Assistant - CS 181, <i>Introduction to Theoretical Computer Science</i> , UCLA
Spring 2021	Teaching Assistant - CS 32, <i>Introduction to Computer Science II</i> , UCLA
Winter 2021	Teaching Assistant - CS 32, <i>Introduction to Computer Science II</i> , UCLA
Fall 2020	Teaching Assistant - CS 181, <i>Introduction to Theoretical Computer Science</i> , UCLA
Spring 2020	Teaching Assistant - CS 180, <i>Introduction to Algorithms and Complexity</i> , UCLA
Fall 2017	Teaching Assistant - CMPS 12B, <i>Introduction to Data Structures</i> , UC Santa Cruz
Fall 2015	MSI Learning Assistant - CMPS 101, <i>Algorithms and Abstract Data Types</i> , UC Santa Cruz
2014 - 2016	MSI Learning Assistant - CMPE 16, <i>Discrete Mathematics</i> , UC Santa Cruz
2014	Mathematics Tutor - <i>Calculus, Trigonometry, and Algebra</i> , Santa Rosa Junior College

Professional Service

Program committee member - ITCS 2025
 Junior program committee member - COLT 2025
 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