Hadley Black

Postdoctoral Researcher in Computer Science
University of California, San Diego
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Education

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

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

2018 MS in Computer Science, *UC Santa Cruz*
Advisor: 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

2024 Hadley Black, Euiwoong Lee, Arya Mazumdar, Barna Saha
Clustering with Non-adaptive Subset Queries.
In submission.

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 *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

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.
2016 Porter College Leadership and Community Service Award, UC Santa Cruz.
2013 - 2016 Dean's Honors, UC Santa Cruz - all terms attended.

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 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
External Journal Reviewer - TOCT 2018, SIDMA 2018, TCS 2024
External Conference Reviewer - SOSA 2020, SODA 2021, ICALP 2021, ICALP 2022, FOCS 2022, FOCS 2023, STOC 2024, FORC 2024, FOCS 2024, SODA 2025