

# DANIEL HALPERN

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## EDUCATION

### Harvard University

Ph.D. in Computer Science

- Advisor: Ariel Procaccia

Cambridge, MA

August 2020 to present

### University of Toronto

B.Sc. in Computer Science with High Distinction

- Major GPA: 4.0/4.0, Cumulative GPA: 3.96/4.0

Toronto, ON

September 2016 to June 2020

## AWARDS

- Selected for the 9th Heidelberg Laureate Forum 2022
- **National Science Foundation Graduate Research Fellowship** 2021
- University of Toronto Computer Science Undergraduate Research Award 2020
- Harold Willet Stewart Memorial Scholarship 2020
- Anna And Alex Beverly Memorial Fellowship 2020
- Samuel Beatty In Course Scholarship 2019
- C. L. Burton Scholarship For Mathematics and Physical Sciences 2019
- Dr. James A. & Connie P. Dickson Scholarship in Science & Mathematics 2018
- Alan Milne McCombie Scholarship 2017
- University of Toronto President's Scholars of Excellence Program 2016

## PUBLICATIONS

17. G. Benadè, D. Halpern, A. Psomas, and P. Verma. On the Existence of Envy-Free Allocations Beyond Additive Valuations. Working Paper.
16. F. Baumann, D. Halpern, I. Rahwan, I. Shapira, A. D. Procaccia, and M. Wüthrich. Optimal Engagement-Diversity Tradeoffs in Social Media. Working Paper.
15. D. Halpern and A. D. Procaccia. Unbiased Information Packets. Working Paper.
14. D. Halpern, R. Li, and A. D. Procaccia. Strategyproof Voting under Correlated Beliefs. In *Proceedings of the 37th Conference on Neural Information Processing Systems (NeurIPS)*, 2023. Forthcoming.
13. B. Flanigan, D. Halpern, and A. Psomas. Smoothed Analysis of Social Choice Revisited. In *Proceedings of the 19th Conference on Web and Internet Economics (WINE)*, 2023. Forthcoming.
12. D. Halpern, J. Y. Halpern, A. Jadbabaie, E. Mossel, A. D. Procaccia, and M. Revel. In Defense of Liquid Democracy. In *Proceedings of the 24th ACM Conference on Economics and Computation (EC)*, pp. 852, 2023.
11. D. Halpern, G. Kehne, A. D. Procaccia, J. Tucker-Foltz, and M. Wüthrich. Representation with Incomplete Votes. In *Proceedings of the 37th AAAI Conference on Artificial Intelligence (AAAI)*, pp. 5657–5664, 2023.
10. G. Benadè, D. Halpern, and A. Psomas. Dynamic Fair Division with Partial Information. In *Proceedings of the 36th Conference on Neural Information Processing Systems (NeurIPS)*, pp. 3703–3715, 2022.
9. M. Revel, D. Halpern, A. Berinsky, and A. Jadbabaie. Liquid Democracy in Practice: An Empirical Analysis of its Epistemic Performance. In *Proceedings of the 2nd ACM conference on Equity and Access in Algorithms, Mechanisms, Optimization (EAAMO)*, 2022.
8. A. Borodin, D. Halpern, M. Latifian, and N. Shah. Distortion in Voting with Top-t Preferences. In *Proceedings of the 31st International Joint Conference on Artificial Intelligence (IJCAI)*, pp. 116–122, 2022.
7. D. Halpern, G. Kehne, and J. Tucker-Foltz. Can Buyers Reveal for a Better Deal?. In *Proceedings of the 31st International Joint Conference on Artificial Intelligence (IJCAI)*, pp. 314–320, 2022.
6. M. Revel, T. Lin, and D. Halpern. How Many Representatives Do We Need? The Optimal Size of an Epistemic Congress. In *Proceedings of the 36th AAAI Conference on Artificial Intelligence (AAAI)*, pp. 9431–9438, 2022.
5. D. Halpern and N. Shah. Fair and Efficient Resource Allocation with Partial Information. In *Proceedings of the 30th International Joint Conference on Artificial Intelligence (IJCAI)*, pp. 224–230, 2021.
4. D. Halpern, G. Kehne, D. Peters, A. D. Procaccia, N. Shah, and P. Skowron. Aggregating Binary Judgments Ranked By Accuracy. In *Proceedings of the 35th AAAI Conference on Artificial Intelligence (AAAI)*, pp. 5456–5463, 2021.

3. D. Halpern, A. D. Procaccia, A. Psomas, and N. Shah. Fair Division with Binary Valuations: One Rule to Rule Them All. In *Proceedings of the 16th Conference on Web and Internet Economics (WINE)*, pp. 370–383, 2020.
2. V. Gkatzelis, D. Halpern, and N. Shah. Resolving the Optimal Metric Distortion Conjecture. In *Proceedings of the 61st Annual IEEE Symposium on Foundations of Computer Science (FOCS)*, pp. 1427–1438, 2020.
1. D. Halpern and N. Shah. Fair Division with Subsidy. In *Proceedings of the 12th International Symposium on Algorithmic Game Theory (SAGT)*, pp. 374–389, 2019.

## WORK EXPERIENCE

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### Carnegie Mellon University

Research Intern

Pittsburgh, PA

June 2019 - August 2019

- Worked with Professor Ariel Procaccia
- Research in topics related to Algorithmic Game Theory

### CryptoNumerics

Software Developer

Toronto, ON

April 2018 - July 2020

- One of the first employees at start up working on machine learning and cryptography
- Leader of several projects in Python, Java, and Javascript

## TEACHING EXPERIENCE

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### Harvard University

Teaching Fellow

Cambridge, MA

Spring 2022

- Optimized Democracy (CS238)

### University of Toronto

Undergraduate Teaching Assistant

Toronto, ON

Spring 2020

- Data Structures and Analysis (CSC263)

### University of Toronto

Undergraduate Teaching Assistant

Toronto, ON

Spring 2020

- Algorithm Design, Analysis & Complexity (CSC373)

## SERVICE

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**PC Member:** AAAI ('23), IJCAI ('23), SAGT ('23)

**Journal Reviewer:** ARTINT ('21, '22), JAAMAS ('21, '21, '21, '22), MSS ('21, '22, '23)

**Subreviewer:** EAAMO ('22), SAGT ('21), SODA ('24)

## INVITED TALKS

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### Representation with Incomplete Votes

- Bellairs Workshop on Multi-Agent Systems
- COMSOC Video Seminar

March, 2023

February, 2023

### In Defense of Liquid Democracy

- LAMSADE Mini-Workshop on Cooperative Games, Social Choice, and Fair Division

September, 2022

### Fair and Efficient Resource Allocation with Incomplete Votes

- Drexel Theory Seminar

May, 2021

### Resolving the Optimal Metric Distortion Conjecture

- Highlights Beyond EC
- Cornell Theory Seminar
- Harvard EconCS Seminar

July, 2021

November, 2020

September, 2020