

# DANIEL HALPERN

150 Western Ave, Allston, MA, 02134 | +1 (607) 227-4045 | dhalpern@g.harvard.edu | <https://daniel-halpern.com>

## EDUCATION

### Harvard University

Ph.D. in Computer Science

- Advisor: Ariel Procaccia

Cambridge, MA

Aug. 2020–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

Sep. 2016–Jun. 2020

## SELECTED HONORS AND AWARDS

- Siebel Scholarship 2024–2025
- NSF Graduate Research Fellowship 2021–2024
- Selected for the 9th Heidelberg Laureate Forum 2022

*Undergraduate awards and honors:* 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)

## JOURNAL ARTICLES

### Published

1. A. Berinsky, D. Halpern, J. Y. Halpern, A. Jadbabaie, E. Mossel, A. D. Procaccia, and M. Revel. Truth Tracking in Liquid Democracy. In *Management Science (MS)*. Forthcoming.

### Under Submission

1. G. Benadè, D. Halpern, and A. Psomas. Dynamic Fair Division with Partial Information. Under Major Revision at *Operations Research (OR)*.

## CONFERENCE PUBLICATIONS

18. D. Halpern, S. Hossain, and J. Tucker-Foltz. Computing Voting Rules with Elicited Incomplete Votes. In *Proceedings of the 25th ACM Conference on Economics and Computation (EC)*, 2024. Forthcoming.
17. G. Benadè, D. Halpern, A. Psomas, and P. Verma. On the Existence of Envy-Free Allocations Beyond Additive Valuations. In *Proceedings of the 25th ACM Conference on Economics and Computation (EC)*, 2024. Forthcoming.
16. S. Ebadian, D. Halpern, and E. Micha. Metric Distortion with Elicited Pairwise Comparisons. In *Proceedings of the 33rd International Joint Conference on Artificial Intelligence (IJCAI)*, pp. 2791–2798, 2024.
15. F. Baumann, D. Halpern, I. Rahwan, I. Shapira, A. D. Procaccia, and M. Wüthrich. Optimal Engagement-Diversity Tradeoffs in Social Media. In *Proceedings of the 33rd ACM Web Conference (WWW)*, pp. 288–299, 2024.
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)*, pp. 39744–39754, 2023.
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)*, pp. 290–309, 2023.
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.

## WORKING PAPERS

3. L. Ge, D. Halpern, E. Micha, A. D. Procaccia, I. Shapira, Y. Vorobeychik, and J. Wu. Axioms for AI Alignment from Human Feedback.
2. D. Halpern, A. D. Procaccia, E. Shapiro, and N. Talmon. Federated Assemblies.
1. D. Halpern, A. D. Procaccia, and W. Suksompong. The Proportional Veto Principle for Approval Ballots.

## WORK EXPERIENCE

### Carnegie Mellon University

Research Intern

- Worked with Professor Ariel Procaccia

Pittsburgh, PA

Jun. 2019–Aug. 2019

### CryptoNumerics

Software Developer

- One of the first employees at start up working on machine learning and cryptography

Toronto, ON

Apr. 2018–Jul. 2020

## TEACHING EXPERIENCE

### GEC Academy

Teaching Fellow

- Mathematics for Economics

Online

Summer 2024

### Harvard University

Teaching Fellow

- Optimized Democracy (CS238)

Cambridge, MA

Spring 2022

### University of Toronto

Undergraduate Teaching Assistant

- Data Structures and Analysis (CSC263)
- Algorithm Design, Analysis & Complexity (CSC373)

Toronto, ON

Spring 2020

## SERVICE

**PC Member:** AAAI ('23, '24, '25), IJCAI ('23, '24), SAGT ('23), NeurIPS ('24)

**Journal Reviewer:** ARTINT ('21, '22, '24), JAAMAS ('21, '21, '21, '22), MOR ('22, '23), MSS ('21, '22, '23)

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

## INVITED TALKS

### Computing Voting Rules with Elicited Incomplete Votes

- Oxford Algorithmic Game Theory Seminar

June, 2024

### Representation with Incomplete Votes

- INFORMS Annual Meeting
- Bellairs Workshop on Multi-Agent Systems
- COMSOC Video Seminar

October, 2023

March, 2023

February, 2023

**In Defense of Liquid Democracy**

- HalpernFest: A workshop honoring and celebrating Joe Halpern
- LAMSADE Mini-Workshop on Cooperative Games, Social Choice, and Fair Division

June, 2023  
September, 2022

**Fair and Efficient Resource Allocation with Partial Information**

- Drexel Theory Seminar

May, 2021

**Resolving the Optimal Metric Distortion Conjecture**

- MSRI/SLMath Social Choice Seminar
- Highlights Beyond EC
- Cornell Theory Seminar
- Harvard EconCS Seminar

November, 2023  
July, 2021  
November, 2020  
September, 2020