

Soroush Ebadian

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EDUCATION

- **Ph.D. in Computer Science** Sep. 2020 – Nov. 2025 (Expected)
University of Toronto, Canada GPA: 4.0+/4.0
Advisor: [Nisarg Shah](#)
- **B.Sc. in Computer Engineering** Sep. 2015 – Aug. 2020
Sharif University of Technology, Tehran, Iran GPA: 18.68/20

EXPERIENCE

- **Machine Learning Research Intern, Borealis AI**, Toronto, CA Sep. 2024 – Present
Conducting research on multi-task deep learning models for time series data.
- **Research Assistant, University of Toronto**, Toronto, CA Sep. 2020 – Present
Presented my work in top-tier AI, ML, and Econ-CS conferences such as EC, NeurIPS, IJCAI, AAMAS.
- **Visiting Researcher, Harvard University**, Boston, USA Sep. – Dec. 2023
Worked on various problems in social choice and AI Alignment. Host: [Ariel D. Procaccia](#).
- **Research Intern, Institute of Science and Technology Austria**, Austria Jul. – Sep. 2019
Designed and implemented verification techniques for concurrent programs. Host: [Thomas A. Henzinger](#).
- **Technical Manager, CafeBazaar**, Tehran, Iran Jan. 2017 – Sep. 2020
 - *CafeBazaar Cloud*: Led 10-20 software engineers in three teams to develop 6 cloud infrastructure services — providing storage, database, and big data management services to tech companies with tens of millions of users.
 - *Divar*: Released a multi-device buyer-seller chat on three platforms for Divar online classified ads with 16M users.
- **Software Engineer, CafeBazaar**, Tehran, Iran Apr. 2015 – Jan. 2017
 - Developed a buyer-seller messaging feature on iOS client of Divar with 2M+ iOS users.
 - Redesigned the backend architecture and scaled a large-scale system accepting 100M+ requests per day from 25M.

SELECTED HONORS AND AWARDS

- **Gold medal in the National Olympiad in Informatics**, Iran. 2014
- **2nd place in the ACM-ICPC West Asia Regional Contest**, Tehran, Iran. 2015
- **Ontario Graduate Scholarship (C\$15000)** 2023
Government of Ontario and University of Toronto
- **Alfred B. Lehman Graduate Scholarship in Computer Science (C\$5000)** 2023 and 2024
Dept. of Computer Science, University of Toronto
- **Computer Science 50th Anniversary Graduate Scholarship (C\$2000)** 2022
Dept. of Computer Science, University of Toronto
- **4th place in the National Scientific Olympiad in Computer Science and Engineering**, Iran 2019

PEER-REVIEWED CONFERENCE PUBLICATIONS

- C11. **S. Ebadian**, R. Freeman, N. Shah, “[Harm Ratio: A Novel and Versatile Fairness Criterion](#)”, in *Proc. of 4th ACM Conf. on Equity and Access in Algorithms, Mechanisms, and Optimization (EAAMO’24)*, 2024. Forthcoming.
- C10. **S. Ebadian**, D. Halpern, E. Micha, “[Metric Distortion with Elicited Pairwise Comparisons](#)”, in *Proc. of 33rd Int. Joint Conf. on Artificial Intelligence (IJCAI’24)*, pp. 2791–2798, 2024.

- C9. **S. Ebadian**, A. Filos-Ratsikas, M. Latifian, N. Shah, “[Computational Aspects of Distortion](#),” in *Proc. of 23rd Int. Conf. on Autonomous Agents and MultiAgent Systems (AAMAS’24)*, pp. 499–507, 2024.
- C8. **S. Ebadian**, A. Filos-Ratsikas, M. Latifian, N. Shah, “[Explainable and Efficient Randomized Voting Rules](#),” in *Proc. of 37th Annual Conf. on Neural Information Processing Systems (NeurIPS’23)*, pp. 23034–23046, 2023.
- C7. **S. Ebadian**, M. Latifian, N. Shah, “[The Distortion of Approval Voting with Runoff](#),” in *Proc. of 22nd Int. Conf. on Autonomous Agents and MultiAgent Systems (AAMAS’23)*, pp. 1752–1760, 2023.
- C6. **S. Ebadian**, G. Kehne, E. Micha, A. D. Procaccia, and N. Shah, “[Is Sortition Both Representative and Fair?](#),” in *Proc. of 36th Annual Conf. on Neural Information Processing Systems (NeurIPS’22)*, pp. 3431–3443, 2022.
- C5. **S. Ebadian**, A. Kahng, D. Peters, and N. Shah, “[Optimized Distortion and Proportional Fairness in Voting](#),” in *Proc. of 23rd ACM Conf. on Economics and Computation (EC’22)*, pp. 563–600, 2022.
- C4. **S. Ebadian**, R. Freeman, and N. Shah, “[Efficient Resource Allocation with Secretive Agents](#),” in *Proc. of 31st Int. Joint Conf. on Artificial Intelligence (IJCAI’22)*, pp. 272–278, 2022.
- C3. **S. Ebadian**, D. Peters, and N. Shah, “[How to Fairly Allocate Easy and Difficult Chores](#),” in *Proc. of 21st Int. Conf. on Autonomous Agents and MultiAgent Systems (AAMAS’22)*, pp. 372–380, 2022.
- C2. **S. Ebadian** and X. Huang, “[Fast Algorithm for \$k\$ -Truss Discovery on Public-Private Graphs](#),” in *Proc. of 28th Int. Joint Conf. on Artificial Intelligence (IJCAI’19)*, pp. 2258–2264, 2019.
- C1. **S. Ebadian** and H. Zarrabi-Zadeh, “[A Simple Randomized Algorithm for All Nearest Neighbors](#),” in *Proc. of 31st Canadian Conf. on Computational Geometry (CCCG’19)*, pp. 94–98, 2019.
Invited to the special issue of the journal of Computational Geometry.

JOURNAL PUBLICATION

- J1. **S. Ebadian**, A. Kahng, D. Peters, and N. Shah, “[Optimized Distortion and Proportional Fairness in Voting](#),” in *ACM Transactions on Economics and Computation*, (**TEAC**), Vol. 12, Issue 1, pp. 1–39, 2024.

WORKING PAPERS

- W1. P. A. Alamdari, **S. Ebadian**, A. D. Procaccia, “[Policy Aggregation](#)”, 2024. (*Submitted to NeurIPS’24*)
- W2. **S. Ebadian** and E. Micha, “[Boosting Sortition via Proportional Representation](#)”, 2024.
(*Submitted to NeurIPS’24*)
- W3. **S. Ebadian**, N. Shah, “Every Bit Helps: Achieving the Optimal Distortion with a Few Queries”, 2024.*
(*Submitted to AAAI’25*)
- W4. S. Barman, **S. Ebadian**, M. Latifian, N. Shah, “Fair Division with Market Values”, 2024.*
(*Submitted to AAAI’25*)
- W5. B. Cookson, **S. Ebadian**, N. Shah, “Temporal Fair Division”, 2024.* (*Submitted to AAAI’25*)
- W6. B. Cookson, **S. Ebadian**, N. Shah, “Constrained Fair and Efficient Allocations”, 2024.*
(*Submitted to AAAI’25*) (*Manuscript available upon request.)

TECHNICAL SKILLS

- **Programming Languages:** Python, C/C++, Java, Swift, C#, Bash
- **Technologies:** PyTorch, Redis NoSQL, PostgreSQL, Django, Scikit-learn, Pandas, NumPy

PROFESSIONAL SERVICE

- **PC Member:** AAAI 2025, NeurIPS 2024, AIES 2024, AAAI 2024, AIES 2023, AAAI 2023

- **Reviewer (Journal):** Journal of Artificial Intelligence (AIJ), Games and Economic Behavior (GEB), ACM Transactions on Economics and Computation (TEAC), SIAM Journal on Discrete Mathematics (SIDMA), Journal of Mathematical Social Sciences (JMSS)
- **Reviewer (Conference):** EC 2024, SODA 2024, SAGT 2021

TEACHING EXPERIENCE

- **Teaching Assistant**, CS Department, University of Toronto
 - CSC2421 Mathematical Foundations of algorithmic fairness Winter 2024
 - CSC473 Advanced Algorithm Design Winter 2024
 - CSC2412 Algorithms for Private Data Analysis Winter 2023
 - CSC373 Algorithm Design, Analysis and Complexity Fall 2021, Summer 2022, Fall 2023
 - CSC303 Social and Economics Networks Winter 2021, Winter 2023
 - CSC304 Algorithmic Game Theory and Mechanism Design Fall 2022
 - CSC2556 Algorithms for Collective Decision Making Winter 2022
 - CSC263 Data Structures and Analysis Summer 2021, Fall 2024
- **Teaching Assistant**, CE Department, Sharif University of Technology
 - Design and Analysis of Algorithms Fall 2017, 2018, 2019
 - Discrete Structures Spring 2019
 - Algorithmic Game Theory Spring 2019
 - System Analysis and Design Fall 2018, Spring 2019
 - Data Structures and Algorithms Spring 2016
- **Instructor**, INOI Summer Camp 2016, 2017, and 2020
Taught advanced topics in Algorithms, Data Structures, and Algorithmic Graph Theory to students preparing for IOI.
- **Lecturer**, Allameh Helli High-School 2015 – 2016, Fall 2019
Taught Algorithms and Data Structures to students preparing for the Iranian National Olympiad in Informatics (INOI).

OTHER ACTIVITIES

- **Lead Engineer**, [Spliddit](#) 2023 – Present
Migrated the legacy code to newer versions of Ruby on Rails. Deployed and maintained the service on AWS. Implemented a new algorithm for fair task division and improved the performance of the goods division algorithm.
- **Task Preparation System for IOI 2017** [[Technical Report](#), [GitHub](#)] 2016 – 2017
Developed a system for preparing IOI tasks by Scientific Committee. Used at IOI 2017 and 2019.
- **Member of the Scientific Committee** of National Programming Contests
Designed programming contests and authored problems with an algorithmic theme.
 - West Asia ACM ICPC Regional Contest 2018 – 2019
 - Iran's IOI Team Selection Exams 2016 – 2019
 - INOI Summer Camp Programming Exams 2015 – 2017
- **Executive Director** of the **3rd Winter Seminar Series (WSS)** at Sharif University of Tech. Fall 2017
A four-day event including 28 talks and 7 workshops in computer science and engineering with near 400 participants.
 - Raised \$25,000 funding through sponsorship. Led 50 volunteer staffs in about 15 teams.