Saba Ahmadi

Toyota Technological Insitute at Chicago
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RESEARCH
INTERESTS
- **Foundations of Machine Learning**
- **Algorithmic Game Theory**
- **Foundations of Responsible Computing**
- **Theoretical Computer Science**

APPOINTMENTS
- **Toyota Technological Institute at Chicago**   Sep 2021 - Present
  Postdoctoral Researcher hosted by Avrim Blum

EDUCATION
- **Ph.D. in Computer Science**   2021
  Department of Computer Science, University of Maryland, College Park, MD
  Advisor: Samir Khuller
  Thesis Title: Social Aspects of Algorithms: Fairness, Diversity, and Resilience to Strategic Behavior

- **M.Sc. in Computer Science**   2018
  Department of Computer Science, University of Maryland, College Park, MD
  Advisor: Samir Khuller

- **B.Sc. in Software Engineering**   2015
  University of Tehran, Tehran, Iran

CONFERENCE
PAPERS
- **Strategic Littlestone Dimension: Improved Bounds on Online Strategic Classification**
  Saba Ahmadi, Kunhe Yang and Hanrui Zhang.
  Neural Information Processing Systems (NeurIPS 2024).

- **Agnostic Multi-Robust Learning Using ERM**
  Saba Ahmadi, Avrim Blum, Omar Montasser and Kevin Stangl.
  International Conference on Artificial Intelligence and Statistics (AISTATS 2024).

- **Fundamental Bounds on Online Strategic Classification**
  Saba Ahmadi, Avrim Blum, and Kunhe Yang.
  Conference on Economics and Computation (EC 2023).

- **Setting Fair Incentives to Maximize Improvement**
  Saba Ahmadi, Hedyeh Beyhaghi, Avrim Blum, and Keziah Naggita.
  Foundations on Responsible Computing (FORC 2023).

- **Individual Preference Stability for Clustering**
  Saba Ahmadi, Pranjal Awasthi, Samir Khuller, Matthäus Kleindessner, Jamie Morgenstern, Pattara Sukprasert, and Ali Vakilian.
  International Conference on Machine Learning(ICML 2022).

- **On Classification of Strategic Agents who Can Both Game and Improve**
  Saba Ahmadi, Hedyeh Beyhaghi, Avrim Blum, and Keziah Naggita
  Foundations on Responsible Computing (FORC 2022).
  Presented at "Learning and Decision-Making with Strategic Feedback" and "Learning in Presence of Strategic Behavior" Workshops at NeurIPS 2021.

- **The Strategic Perceptron**
  Saba Ahmadi, Hedyeh Beyhaghi, Avrim Blum, and Keziah Naggita.
  Conference on Economics and Computation (EC 2021).
  Also presented at "Learning and Decision-Making with Strategic Feedback" and "Learning in Presence of Strategic Behavior" Workshops at NeurIPS 2021.

- **An Algorithm for Multi-Attribute Diverse Matching**
  Saba Ahmadi, Faez Ahmed, John P. Dickerson, Mark Fuge, and Samir Khuller.
  Internationl Joint Conference on Artificial Intelligence, (IJCAI 2020).
  Also presented at Negative Dependence and Submodularity in Machine Learning Workshop at ICML 2020.

- **Min-max Correlation Clustering via Multicut**
  Saba Ahmadi, Samir Khuller, and Barna Saha
  International Conference on Integer Programming and Combinatorial Optimization (IPCO 2019).

- **On Scheduling Coflows**
  Saba Ahmadi, Samir Khuller, Manish Purohit, and Sheng Yang.
  International Conference on Integer Programming and Combinatorial Optimization (IPCO 2017).

JOURNAL PAPERS
- **On Scheduling Coflows**
  Saba Ahmadi, Samir Khuller, Manish Purohit, and Sheng Yang.
  Algorithmica 2020.

- **The Landscape of Precision Cancer Combination Therapy: A Single-Cell Perspective**
  Saba Ahmadi*, Pattara Sukprasert*, Rahulsimham Vegesna, Sanju Sinha, Fiorella Schischlik, Natalie Artzi, Samir Khuller, Alejandro A. Schaffer, and Eytan Ruppin(* equal contribution).
  Nature Communications (2022).

PREPRINTS/UNDER SUBMISSION
- **Replicable Online Learning**
  Saba Ahmadi, Siddharth Bhandari, Avrim Blum. (Under Submission 2024).
- **Strategic Filtering for Content Moderation: Free Speech or Free of Distortion?**
  Saba Ahmadi, Avrim Blum, Haifeng Xu, Fan Yao. (Under Submission 2024).
- **Distributional Adversarial Loss**
  Saba Ahmadi, Siddharth Bhandari, Avrim Blum, Chen Dan, Prabhav Jain. (Under Submission 2024).
- **Fair Correlation Clustering**
  Saba Ahmadi, Sainyam Galhotra, Barna Saha, and Roy Schwartz. (Preprint 2020).

SELECTED TALKS
- **Trustworthy Machine Learning in the Presence of Strategic Behavior and Adversarial Attacks**

  - Vector Institute   April 2024
- **Strategic Classification**

  - INFORMS Annual Meeting   Oct 2024

- Google Research, NY — December 2023
- Google Research, Mountain View — October 2023
- IDEAL Workshop on Trustworthiness in the Presence of Adversaries and Strategic Agents in Machine Learning — October 2023
- NSF TRIPODS Workshop — August 2023
- TOC4Fairness Seminar — December 2022
- Conference on Economics and Computation (EC) — July 2021

- **Setting Fair Incentives to Maximize Improvement**
  - Conference on Foundations of Responsible Computing (FORC) — June 2023
- **Adversarial Robustness Against Physical Attacks**
  - DARPA GARD site visit at TTIC — September 2022
- **On Scheduling Coflows**
  - DIMACS Workshop at Rutgers — 2017

Research Vistis and Internships	• **Research Intern** Toyota Technological Institute at Chicago Host: Avrim Blum	**Summer 2020**
	• **Pre-doc Scholar** Northwestern University Advisor: Samir Khuller	**Fall 2019 -Spring 2021**
	• **Research Intern** Oath Inc. Host: Niklas Karlsson	**Summer 2018**
	• **Research Intern** University of Massachusetts Amherst Host: Barna Saha	**Fall 2017**

Teaching Experience

- **Teaching Assistant, University of Maryland** — 2015-2020
  - Design and Analysis of Computer Algorithms — Fall 2021, Spring 2017
  - Object-Oriented Programming I — Fall 2018
  - Bioinformatic Algorithms, Databases, and Tools — Spring 2018
  - Discrete Structures — Fall 2015, 2016
  - Algorithms

Professional Services

- **Journal Referee**
  - Management Science — 2024
  - Transactions on Parallel and Distributed Systems — 2024
  - ACM Transactions on Algorithms (TALG) — 2023
  - Transactions on Networking — 2021
- **Reviewer**
  - Conference on Neural Information Processing Systems(NeurIPS) — 2024
  - Conference on Neural Information Processing Systems(NeurIPS) — 2023
  - International Conference on Artificial Intelligence and Statistics(AISTATS) — 2022

- Workshop on Learning with Strategic Agents (LSA)
  at International Conference on Autonomous Agents and Multiagent Systems (AAMAS)   2022
- International Conference on Artificial Intelligence and Statistics(AISTATS)   2021

- **External Reviewer**

  - European Symposium on Algorithms (ESA)   2022
  - International Colloquium on Automata, Languages and Programming(ICALP)   2022
  - Symposium on Foundations of Computer Science (FOCS)   2021
  - Innovations in Theoretical Computer Science (ITCS)   2021
  - International Colloquium on Automata, Languages and Programming(ICALP)   2020

- **Co-organizer**

  - IDEAL Special Program on Trustworthy and Reliable Data Science   Fall 2023

REFERENCES

- **Avrim Blum**
  Professor and Chief Academic Officer
  Toyota Technological Institute at Chicago (TTIC)
  avrim@ttic.edu

- **Samir Khuller**
  Peter and Adrienne Barris Chair of Computer Science
  Computer Science Department
  Northwestern University
  samir.khuller@northwestern.edu

- **Haifeng Xu**
  Assistant Professor of Computer Science
  Computer Science Department
  University of Chicago
  haifengxu@uchicago.edu

- **Pranjal Awasthi**
  Google Research
  pranjal.iitm@gmail.com