Maryam Aliakbarpour

Curriculum Vitae

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Research Interests

- ◇ Theoretical Computer Science
- ◇ Statistical Inference
- ◇ Learning Theory
- ◇ Differential Privacy
- ◇ Hypothesis Testing

Education

- ◇ **Massachusetts Institute of Technology (MIT)** — Cambridge, USA
  Ph.D. in Computer Science — Sep 2015 - Sep 2020
  Thesis: Distribution Testing: Classical and New Paradigms
  Advisor: **Prof. Ronitt Rubinfeld**

- ◇ **Massachusetts Institute of Technology (MIT)** — Cambridge, USA
  M.S. in Electrical Engineering and Computer Science — Sep 2013 - Sep 2015
  Thesis: Learning and Testing Junta Distributions over Hypercubes
  Advisor: Prof. Ronitt Rubinfeld

- ◇ **Sharif University of Technology** — Tehran, Iran
  B.S. in Computer Engineering - Software — Sep 2009 - June 2013

Work Experiences

- ◇ **Assistant Professor** in Department of Computer Science at **Rice University** July 2023 - present
- ◇ **Postdoctoral** Scholar at **Boston University/Northeastern University** Sep 2021 - June 2023
- ◇ **Postdoctoral** Research Associate at **UMass Amherst** Sep 2020 - Aug 2021
- ◇ Visiting participant of at **Simons Institute, UC Berkeley** Fall 2020
  Probability, Geometry, and Computation in High Dimensions Program
- ◇ Summer internship at **Google** Sunnyvale, CA, USA Summer 2017
- ◇ Summer internship at **EPFL** (Ecole Polytechnique Federale de Lausanne), Lausanne, Switzerland. Summer 2012

Publications

1. *Hypothesis Selection with Memory Constraints*
   M. Aliakbarpour, M. Bun, A. Smith
   Preprint
2. *Differentially Private Medians and Interior Points for Non-Pathological Data*
   M. Aliakbarpour, R. Silver, T. Steinke, J. R. Ullman:
   Preprint
3. *Estimation in Path Dependent Stochastic Processes*
   M. Aliakbarpour, C. Daskalakis, R. Rubinfeld, M. Zampetakis
   Preprint
4. *Testing Tail Weight of a Distribution Via Hazard Rate*
   M. Aliakbarpour, A.S. Biswas, K. Ravichandran, R. Rubinfeld
   34th International Conference on Algorithmic Learning Theory, **ALT 2023**
5. *Estimation of Entropy in Constant Space with Improved Sample Complexity*
   M Aliakbarpour, A. McGregor, J. Nelson, E. Waingarten
   36th Conference on Neural Information Processing Systems, **NeurIPS 2022**
6. *Local Differential Privacy Is Equivalent to Contraction of an f-Divergence*

S. Asoodeh, **M. Aliakbarpour**, FP Calmon
2021 IEEE International Symposium on Information Theory, **ISIT 2021**

7. *Rapid Approximate Aggregation with Distribution-Sensitive Interval Guarantees*
S. Macke, **M. Aliakbarpour**, I. Diakonikolas, A. Parameswaran, R. Rubinfeld
37th IEEE International Conference on Data Engineering, **ICDE 2021**
8. *Testing Determinantal Point Processes*
Khashayar Gatmiry, **M. Aliakbarpour**, Stefanie Jegelka
34th Conference on Neural Information Processing Systems, **NeurIPS 2020 (Spotlight)**
9. *Testing Properties of Multiple Distributions with Few Samples*
M. Aliakbarpour, S. Silwal
11th Innovations in Theoretical Computer Science Conference, **ITCS 2020**
10. *Private Testing of Distributions via Sample Permutations*
M. Aliakbarpour, I. Diakonikolas, D. Kane, R. Rubinfeld
33rd Conference on Neural Information Processing Systems, **NeurIPS 2019**
11. *Towards Testing Monotonicity of Distributions Over General Posets*
M. Aliakbarpour, T. Gouleakis, J. Peebles, R. Rubinfeld, A. Yodpinyanee
32nd Annual Conference on Learning Theory, **COLT 2019**
12. *Testing Mixtures of Distributions*
M. Aliakbarpour, R. Kumar, R. Rubinfeld
32nd Annual Conference on Learning Theory, **COLT 2019**
13. *Differentially Private Identity and Equivalence Testing of Discrete Distributions*
M. Aliakbarpour, I. Diakonikolas, R. Rubinfeld
35th International Conference on Machine Learning, **ICML 2018**, pp. 169–178
14. *Sublinear-Time Algorithms for Counting Star Subgraphs via Edge Sampling*
M. Aliakbarpour, A. S. Biswas, T. Gouleakis, J. Peebles, R. Rubinfeld, A. Yodpinyanee
Algorithmica 2018, pp. 668–697
15. *I've Seen "Enough": Incrementally Improving Visualizations to Support Rapid Decision Making*
S. Rahman, **M. Aliakbarpour**, H. Kong, E. Blais, K. Karahalios, A. G. Parameswaran, R. Rubinfeld
43rd International Conference on Very Large Data Bases, **VLDB 2017**, pp. 1262–1273
16. *Learning and Testing Junta Distributions*
M. Aliakbarpour, E. Blais, R. Rubinfeld
29th Annual Conference on Learning Theory, **COLT 2016**, pp. 19–46
17. *Join of Two Graphs has a Nowhere-zero* 3*-flow*
S. Akbari, **M. Aliakbarpour**, N. Ghanbari, E. Nategh, H. Shahmohamad
Czechoslovak Mathematical Journal 2014, pp. 433–446
18. *Minimum flow number of complete multipartite graphs*
S. Akbari, **M. Aliakbarpour**, N. Ghanbari, E. Nategh, H. Shahmohamad
Bulletin of the Institute of Combinatorics and its Applications 2012, pp. 57–64

Honors and Awards

- ◇ Selected participant of **Rising Stars in EECS** 2018
- ◇ **Neekeyfar Award**, Office of Graduate Education, MIT 2013
- ◇ **Ranked 2nd** in Cumulative GPA 2013
  among the students in Computer Engineering Department who started in Fall 2009,
  Sharif University of Technology
- ◇ **Ranked 9th** in Nationwide Graduate Entrance Qualification Exam 2012
  computer engineering (artificial intelligence discipline)
  among more than 31,000 participants, Iran
- ◇ **Silver Medal** in Iranian National Olympiad in Informatics 2008

Invited Talks

- ◇ Purdue University, Theory seminar — Nov 2022
- ◇ Sublinear Algorithm Workshop, FODSI, MIT — Aug 2022
- ◇ Workshop on Differential Privacy and Statistical Data Analysis, Fields Institute — July 2022
- ◇ Workshop on Local Algorithms (WOLA) — June 2022
- ◇ Northeastern University — Nov 2021
- ◇ Boston University — Nov 2021
- ◇ Learning and Testing in High Dimensions Workshop, Simons Institute, Berkeley — Dec 2020
- ◇ Carnegie Mellon University, Theory lunch — Oct 2020
- ◇ Harvard University, DP meeting — Sep 2020
- ◇ Workshop on Local Algorithms (WOLA) — July 2020
- ◇ Georgia Tech, ARC Colloquium — Mar 2020
- ◇ University of Massachusetts Amherst — Feb 2020
- ◇ Boston University — Feb 2020
- ◇ Northeastern University — Oct 2018
- ◇ IBM Thomas J. Watson Research Center — Dec 2016

Teaching Experiences

- ◇ **Teaching Assistant**, Massachusetts Institute of Technology:
  - · Geometric Computation — Spring 2020
  - · Introduction to Algorithms — Fall 2017
  - · Design and Analysis of Algorithms — Spring 2016, Fall 2016
- ◇ **Teaching Assistant**, Sharif University of Technology:
  - · For six times in Algorithms, Discrete Mathematics, Scientific and Technical Presentation.

Service work

- ◇ **Program committee**: ITCS 2024, TPDP 2023, COLT 2021, ITCS 2022, COLT 2022,
- ◇ Reviewer committee: COLT 2020, NeurIPS 2020, ICLR 2021, FAccT 2022
- ◇ Subreviewer for many conferences and journals

Leadership Roles and Activities

- ◇ **Co-organizer of Boston-Area Data Privacy Seminar** — Sep 2021 - Dec 2022
  This is a joint seminar series between Boston University, Northeastern University, and Harvard University. We invited speakers from a wide range of backgrounds to talk about recent and influential work on the topic of foundations of data privacy and related subjects.
- ◇ **Member of Resources for Easing Friction and Stress (REFS)** — 2016 - 2019
  Department of Electrical Engineering and Computer Science, MIT, Cambridge, MA, USA
  REFS is a group of EECS graduate students trained as peer mediators by Conflict Management at MIT. Our role is to support the graduate community and serve as the first point of contact in dealing with stress and conflict.
- ◇ **Member of Sidney Pacific Executive Council (SPEC)** — 2015 - 2016
  Sidney Pacific Graduate Community, MIT, Cambridge, MA, USA
  I was the *Chair of the Halls* in Sidney Pacific, my graduate dormitory, with over 600 residents. My role was to train and lead a group of grad students, the hall councilors, at each floor. The goal of my team was to form smaller community in the dorm and make sure that each resident had someone to reach out to. Moreover, I organized several health and wellness events for our residents.