Mahsa Eftekhari

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Research Interests

Distributed Algorithms, Population Protocols, Randomized Algorithms, Algorithmic Game Theory

Education

• **Ph.D. Candidate in Computer Science, University of California, Davis**   **2017–2022**

Supervisor: Prof. David Doty   (expected)

GPA: 3.95/4.0

• **Master of Science (M.Sc.) in Computer Engineering-Software**, Sharif University of Technology
2015–2017

Supervisor: Prof. H. Zarrabi-Zadeh

(GPA: 18.78/20, 3rd in class)

• **Bachelor of Science (B.Sc.) in Computer Science**, Sharif University of Technology   2010–2015

(GPA: 15.35/20, 7th in class)

Publications

• Brief Announcement: A Time and Space Optimal Stable Population Protocol Solving Exact Majority. David Doty, <u>Mahsa Eftekhari</u>, Leszek Gąsieniec, Eric Severson, Grzegorz Stachowiak, and Przemysław Uznański. In the 40th ACM Symposium on Principles of Distributed Computing (PODC 2021)

• Message complexity of population protocols. Talley Amir, James Aspnes, David Doty, <u>Mahsa Eftekhari</u>, and Eric Severson. In the 34th International Symposium on Distributed Computing (DISC 2020)

• Efficient size estimation and impossibility of termination in uniform dense population protocols. David Doty, <u>Mahsa Eftekhari</u>. In the 38th ACM Symposium on Principles of Distributed Computing (PODC 2019)

• Brief announcement: Exact size counting in uniform population protocols in nearly logarithmic time. David Doty, <u>Mahsa Eftekhari</u>, Othon Michail, Paul G. Spirakis, and Michail Theofilatos. In the 32nd International Symposium on Distributed Computing (DISC 2018)

Preprint

• A survey of size counting in population protocols. David Doty, <u>Mahsa Eftekhari</u>. arXiv preprint arXiv:2105.05408 (2021)

Professional Experiences

○ **Software Engineer Intern at Google:** Working on Google's knowledge Graph   Summer 2020

- Working with **Data Commons** team.
- Implementing Python scripts to clean and import data sets into the **Knowledge Graph**; Peer review scripts using GitHub.
- **Analyzing** types of missing data points in time series available in the knowledge graph; Using Python and Rest API calls to retrieve data.
- **Design and implementation** of missing data imputation module using Go language.

○ **Research Assistant at UC Davis:** Distributed computing algorithms 2017-now
- Design, implement, and analyze of protocols
- Working on the population protocols: abstract model for molecular computation
- Research on: exact majority, exact and approximate population size counting, and counting problem in a dynamic network

○ **Master's at Sharif University of Technology:** Online algorithms for fair allocation of goods 2016-2017
- Designing an online allocation algorithm
- Analyzing the competitive ratio of the presented algorithm
- Proving a lower bound on the competitive ratio of any proposed algorithms for the problem

Awards and Honors

- UC Davis GGCS Richard Walters Scholarship Winner   Summer 2021
- GHC scholarship recipient   Summer 2020
- CRA-W scholarship recipient   Spring 2019
- UC Davis GGCS travel award recipient   Fall 2018
- UC Davis graduate fellowship recipient (\$ 59,334.0/year)   Fall 2017
- Ranked 15th, National Scientific Olympiad in Computer Engineering.   Summer 2015
- Ranked 3rd, National Graduate Entrance Exam in CS. (amongst more than 5000 students)   Spring 2015
- Ranked 15th, National Graduate Entrance Exam in Computer Engineering, Software Engineering, Algorithms and Computations. (amongst more than 18000 students)   Spring 2015

Service Experience

- **Poster Presentation** Efficient size estimation and impossibility of termination in uniform dense population protocols, At the 25th International Conference on DNA Computing and Molecular Programming (DNA).

Oct. 2019

- **Poster Presentation** Efficient size estimation and impossibility of termination in uniform dense population protocols, At the Computing Research Association's Committee on the Status of Women in Computing Research. (CRA-W)   Apr. 2019

- **Presentation** Brief announcement: Exact size counting in uniform population protocols in nearly logarithmic

time., At the 32nd International Symposium on Distributed Computing (DISC).   Oct. 2018
- **President** of SEDAD, Iranian Graduate Student Association at UC Davis   2018-2019
- **Member of board** of Student Scientific Association in Department of Mathematical Sciences, Sharif University of Technology   2012-2013

Teaching Assistant

University of California, Davis

Responsibilities: Leading discussion classes, Maintaining auto-grading homeworks, and holding office hours

○ *Theory of Computation*   Spring'21, Spring'20, Spring'18, Winter'18

○ *Theory of Computation (Graduate Course)*   Winter'19

Sharif University of Technology

Responsibilities: Leading discussion classes, designing homeworks, leading interactive Java programming labs

○ *Approximation Algorithms (Graduate Course)*   Spring 2017

○ *Computational Geometry (Graduate Course)*   Fall 2016

○ *Advanced Programming (Java)*   Spring'15, Spring'14

○ *Principles of Computer System*   Spring 2015