Mahsa Eftekhari

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Research Interests

Distributed Algorithms, Approximation Algorithms, Randomized Algorithms, Algorithmic Game Theory

Education

• **Ph.D. Student in Computer Science, University of California, Davis (UC Davis)** **2017–now**

Supervisor: Prof. David Doty

GPA: 3.95/4.0

• **Master of Science (M.Sc.) in Software Engineering**, 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)

Work Experience

• **Software Engineer Intern at Google** **Summer 2020**

- 13 weeks working with **Data Commons** team.
- Implementing **Python** scripts and Colab notebooks to clean data sets and import them into the **Knowledge Graph**; Peer review scripts using GitHub.
- Using **Python and Rest API calls** to retrieve data and analyze them.
- **Design and implementation** of missing data imputation module using **Go language**.

Research Experiences

- **Research Assistant:** Population Protocols, Distributed Computing Algorithms 2017-now
  - Presenting the first sublinear time algorithms for the size counting problem in population protocols
  - presenting a sublinear time algorithms for the size estimation problem in population Protocols
  - Composition of protocols in uniform populations protocols
  - Leader election in populations protocols
- **Master Thesis:** Online Algorithms for Fair Allocation of Goods 2016-2017
  - Presenting 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
- Survey on Mechanism Design for Distributed Computing Fall 2015
- Survey on Truthful Incentives in Crowdsourcing Spring 2015

Publications

• A stable majority population protocol using logarithmic time and states.,*David Doty, Mahsa Eftekhari, and Eric Severson. arXiv preprint arXiv:2012.15800.*

• Message complexity of population protocols., *Talley Amir, James Aspnes, David Doty, Mahsa Eftekhari, and Eric Severson. In the 34th International Symposium on Distributed Computing, 2020.*

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

• Exact size counting in uniform population protocols in nearly logarithmic time., *David Doty, Mahsa Eftekhari, Othon Michail, Paul G. Spirakis, and Michail Theofilatos. arXiv (2018): arXiv-2003.*

• Efficient size estimation and impossibility of termination in uniform dense population protocols., *David Doty, Mahsa Eftekhari. In the 38th ACM Symposium on Principles of Distributed Computing.*

Awards and Honors

- 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.* 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

◦ **Theory of Computation (3 Quarters)** at UC Davis — Spring'20, Spring'18, Winter'18
Leading lectures for a week, leading discussion classes, and holding office hours

◦ **Theory of Computation (Graduate Course))** at UC Davis — Winter'19
Leading lectures for a week and holding office hours

◦ **Approximation Algorithms (Graduate Course)** at Sharif — Spring 2017
Leading discussion classes and designing homeworks

◦ **Computational Geometry (Graduate Course)** at Sharif — Fall 2016
Leading discussion classes and designing homeworks

◦ **Advanced Programming (2 Semesters)** at Sharif — Spring 2015, Spring 2014
Leading interactive Java programming labs and code debugging

◦ **Principles of Computer System** at Sharif — Spring 2015
Leading discussion classes