# Mahsa Eftekhari

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## Research Interests

Algorithms, distributed computing algorithms, randomized algorithms

## Education

**University of California, Davis** — Davis, CA
Ph.D. in Computer Science, Supervisor: David Doty — 2017 –Current

- GPA: 3.95/4.0

**Sharif University of Technology** — Tehran, Iran
M.Sc. in Computer Engineering, Supervisor: H. Zarrabi-Zadeh — 2015–2017

- GPA: 18.78/20 – equivalent to 4.0/4.0, ranked 3rd in class
- Thesis: "Online algorithms for fair allocation of goods"

**Sharif University of Technology** — Tehran, Iran
B.Sc. in Computer Science — 2010–2015

## Publications

Author names are sorted in alphabetical order.

1. Dynamic size counting in population protocols. David Doty, Mahsa Eftekhari. In the 1st Symposium on Algorithmic Foundations of Dynamic Networks **(SAND 2022)**

2. A Time and Space Optimal Stable Population Protocol Solving Exact Majority. David Doty, Mahsa Eftekhari, Leszek Gąsieniec, Eric Severson, Grzegorz Stachowiak, and Przemysław Uznański.

   - Appears In the 62nd Annual of IEEE Symposium on Foundations of Computer Science **(FOCS 2021)**
   - Brief announcement: In the 40th ACM Symposium on Principles of Distributed Computing **(PODC 2021)**

3. A survey of size counting in population protocols. David Doty, Mahsa Eftekhari. Theoretical Computer Science Journal **(TCS 2021)**

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

5. 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 **(PODC 2019)**

6. 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 **(DISC 2018)**

## Experience

**Google**

Software Engineering Intern at Google — Summer 2019

- Expanding Google's knowledge Graph

**Sharif University of Technology**

Research Assistant — 2015 - 2017

- Online algorithms for fair allocation of goods
- I designed and analyzed a new online allocation algorithm. I also proved a lower bound on the competitive ratio of any proposed algorithms for the problem.

## Scholarships and Awards

- UC Davis GGCS Richard Walters scholarship recipient — Summer 2021
- GHC scholarship recipient — Summer 2020
- CRA-W scholarship recipient — Spring 2019
- UC Davis graduate fellowship recipient — Fall 2017
- Ranked 15$^{th}$, National Scientific Olympiad in Computer Engineering. — Summer 2015
- Ranked 3$^{rd}$, National Graduate Entrance Exam in CS. (amongst more than 5000 students) — Spring 2015
- Ranked 15$^{th}$, National Graduate Entrance Exam in Computer Engineering, Software Engineering, Algorithms and Computations. (amongst more than 18000 students) — Spring 2015

## Mentoring Experience

- Mentored a female transfer student via MANRRS program — Fall 2021
  (Minorities in Agriculture, Natural Resources, and Related Sciences Mentorship Program)
- Mentoring a graduate student via GSoC program — Winter & Spring 2022
  (Graduate Students of Color Mentorship Program)

## Service/Professional Involvement

### Conference reviewer

- International Symposium on Distributed Computing (DISC) — 2020
- International Conference on DNA Computing and Molecular Programming (DNA) — 2019
- Conference on Foundations of Software Technology and Theoretical Computer Science (FSTTCS) — 2019
- Mathematical Foundations of Computer Science (MFCS) — 2019

### Journal referee

- Journal of Computer and System Sciences (JCSS) — 2021
- Journal of Natural Computing (NACO) — 2021

### Invited talks

- CS theory seminar at Purdue University — Fall 2021
  *Computation in population protocols with a focus on the majority problem*
- Theory of Efficient Algorithms seminar series at University of Hamburg — Spring 2021
  *A stable majority population protocol using logarithmic time and states*

## Teaching Experience

**Responsibilities:** Leading discussion classes, designing homeworks, maintaining auto-grading homeworks, leading interactive Java programming labs, and holding office hours.

### Undergraduate courses

**University of California, Davis**

- **Head Teaching Assistant** Fall 2021
  *Theory of Computation (ECS 120)*
- **Teaching Assistant** Winter'18, Spring 18, 20, 21
  *Theory of Computation (ECS 120)*

**Sharif University of Technology**

- **Teaching Assistant** Spring 2014,15
  *Advanced Programming (Java)*
- **Teaching Assistant** Spring 2015
  *Principles of Computer System*

### Graduate courses

- **Teaching Assistant** at University of California, Davis Winter'19
  *Theory of Computation (ECS 220)*
- **Teaching Assistant** at Sharif University of Technology Spring 2017
  *Approximation Algorithms*
- **Teaching Assistant** at Sharif University of Technology Fall 2016
  *Computational Geometry*