Mahsa Eftekhari Hesari

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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)

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

• 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.*

• 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

- CRA-W travel 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** Exact size counting in uniform population protocols in nearly logarithmic time., *In the 25th International Conference on DNA Computing and Molecular Programming (DNA).* Oct. 2019

• **Presentation** Brief announcement: Exact size counting in uniform population protocols in nearly logarithmic time., *In 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 Winter'19, Spring'18, Winter'18

Leading lectures for two weeks, leading discussion classes, 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

Technical Experience

• **Java Implementation** of multiple simulators for algorithms in population protocols 2018-2019

  ◦ Object oriented programming to simulate agents

  ◦ Distributed algorithms with significantly small memory per agents

• Designing an **App Review Miner** to Extract Information from User Reviews Fall 2016

  ◦ Phase 1: **Survey** on existing App-review miners Team Project

  ◦ Phase 2: **Enhancement** of two existing App-review miners by combining their approaches

  ◦ Phase 3: **Evaluation**; comparing the results of our designed App-review miner with real user experiences

• **Java Implementation** of a P2P File Transfer Software Spring 2011

• **Java Implementation** of a 2-Player Chess Board Game Fall 2010

• **Data Mining** in Practice Spring 2014

  ◦ Clustering psychological data by implementing K-means algorithm

• Developing a Social Media Webpage Spring 2015

  ◦ Mastering **HTML, CSS**, and **JavaScript** for the front-end implementation Team Project

  ◦ Gaining skills in using **GitHub** commands

  ◦ Utilizing **Django** platform for the back-end development