

Alireza Farhadi

Present Address

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Research Interests

- Combinatorial Optimization, Approximation Algorithms
- Algorithmic Game Theory, Market Algorithms, Fair Allocation
- Algorithmic Graph Theory

Education

- **University of Maryland, College Park**, Maryland, USA. Aug. 2016- Present
Ph.D. in Computer Science. **GPA: 3.95/4**
Advisor: MohammadTaghi Hajiaghayi
- **Sharif University of Technology**, Tehran, Iran. Sept. 2012- Jun. 2016
B.Sc., Computer Engineering, **GPA: 17.42/20**
Major: Software Engineering at Computer Engineering Dep.
Minor: Economics at Management and Economics Dep.

Accepted Papers

- **Approximate Maximum Matching in Random Streams**
Alireza Farhadi, MohammadTaghi Hajiaghayi, Tung Mai, Anup Rao, Ryan Rossi
Proceedings of the 31st Annual ACM-SIAM Symposium on Discrete Algorithms (SODA'20)
- **Stochastic Matching on Uniformly Sparse Graphs**
Soheil Behnezhad, Mahsa Derakhshan, Alireza Farhadi, MohammadTaghi Hajiaghayi, Nima Reyhani
Proceedings of the 12th International Symposium on Algorithmic Game Theory (SAGT'19)
- **Lower Bounds for External Memory Integer Sorting via Network Coding**
Alireza Farhadi, MohammadTaghi Hajiaghayi, Kasper Green Larsen, Elaine Shi
Proceedings of the 51st Annual ACM Symposium on the Theory of Computing (STOC'19)
*Invited to **Communications of ACM (CACM) Research Highlights**.*
- **Polynomial-time Approximation Scheme for Minimum k-cut in Planar and Minor-free Graphs**
Mohammad Hossein Bateni, Alireza Farhadi, MohammadTaghi Hajiaghayi
Proceedings of the 30th Annual ACM-SIAM Symposium on Discrete Algorithms (SODA'19)
- **Stochastic Matching with Few Queries: New Algorithms and Tools**
Soheil Behnezhad, Alireza Farhadi, MohammadTaghi Hajiaghayi, Nima Reyhani
Proceedings of the 30th Annual ACM-SIAM Symposium on Discrete Algorithms (SODA'19)
- **On the Complexity of Chore Division**
Alireza Farhadi, MohammadTaghi Hajiaghayi
Proceedings of the 27th International Joint Conference on Artificial Intelligence (IJCAI'18)
- **Envy-free Chore Division for An Arbitrary Number of Agents**
Sina Dehghani, Alireza Farhadi, MohammadTaghi Hajiaghayi, Hadi Yami
Proceedings of the 29th Annual ACM-SIAM Symposium on Discrete Algorithms (SODA'18)
- **Fair Allocation of Indivisible Goods to Asymmetric Agents**
Alireza Farhadi, Mohammad Ghodsi, MohammadTaghi Hajiaghayi, Sebastien Lahaie, David Pennock, Masoud Seddighin, Saeed Seddighin, Hadi Yami
*Journal version appeared in **Journal of Artificial Intelligence Research (JAIR)***
A preliminary version appeared in proceedings of the 6th International Conference on Autonomous Agents and Multiagent Systems (AAMAS'17)

Working Papers

- **Streaming with Oracle: New Streaming Algorithms for Edit Distance and LCS**
Alireza Farhadi, MohammadTaghi Hajiaghayi, Aviad Rubinfeld, Saeed Seddighin
Submitted to the 52nd Annual ACM Symposium on the Theory of Computing (STOC'20)
- **The Computational Complexity of the Gyori-Lovasz Theorem**
Alireza Farhadi, MohammadTaghi Hajiaghayi, Christos Papadimitriou, Saeed Seddighin
- **Exponentially Faster Algorithms for Finding Maximum Matching in the Semi-Streaming Model**
Alireza Farhadi, MohammadTaghi Hajiaghayi, Tung Mai, Anup Rao, Ryan Rossi
- **Almost Envy-free Allocation of Indivisible Items: Breaking the Half Approximation**
Alireza Farhadi, MohammadTaghi Hajiaghayi, Hadi Yami

Honors and Awards

- Recipient of **Facebook PhD Fellowship.** Jan. 2020
- Recipient of **Ann G. Wylie Dissertation Fellowship.** Feb. 2019
- Recipient of University of Maryland **Dean's Fellowship.** Aug. 2016
- **ACM-ICPC**, International Collegiate Programming Contest by ACM
 - **15th Team** in the 39th ACM-ICPC World Finals, Marrakesh, Morocco. May 2015
 - **27th Team** in the 37th ACM-ICPC World Finals, St. Petersburg, Russia. Jul. 2013
 - **1st Team** in Regional Contests of ACM-ICPC West Asia Region. Dec. 2014
 - **2nd Team** in Regional Contests of ACM-ICPC West Asia Region. Dec. 2013
 - **1st Team** in Regional Contests of ACM-ICPC West Asia Region. Dec. 2012
- **IOI**, the International Olympiad in Informatics for pre-college students
 - **International Silver Medal** in the 24th IOI, Sirmione, Italy. Sept. 2012
 - **International Gold Medal** in the 6th Asia-Pacific Informatics Olympiad, Japan. May 2012
 - **Gold Medal** in the 21st Iranian National Olympiad in Informatics. Sept. 2011
 - **Silver Medal** in the 20th Iranian National Olympiad in Informatics. Sept. 2010

Research Experience

- **Research Intern** at Adobe Research, San Jose, Summer 2019
Hosts: Ryan Rossi, Tung Mai, Anup Rao,
Research focused on designing streaming algorithms for approximating the maximum matching.
- **Research Visitor** at Simons Institute for the Theory of Computing, University of California, Berkeley Spring 2018, Fall 2018
- **Research Assistant** at Algorithms Laboratory, Aug. 2016- Present
Department of Computer Science, University of Maryland, College Park.
Advisor: MohammadTaghi Hajiaghayi,
Research focused on fair division problems and approximation algorithms.

- **Research Assistant** at Algorithms Laboratory, Jun. 2015- Aug. 2016
 Department of Computer Science, Sharif University of Technology.
 Advisor: Mohammad Ghodsi,
 Research focused on maximin allocation of indivisible goods.

- Professional Experience**
 - **Coach of ACM-ICPC Teams of the University of Maryland.** 2019- Present
 - **Author of [Problem Split](#) in 31st International Olympiad in Informatics ([IOI 2019](#)).**
 - **Member of the Scientific Committee, ACM-ICPC Regional Contest.**
 Fall 2015- Summer 2016
 - **Member of the Scientific Committee, Iranian National Olympiad in Informatics.**
 Summer 2013- Summer 2016

- Teaching Experience**
 - **Teaching Assistant for CMSC 250**, Discrete Structures, Fall 2016
 University of Maryland.
 - **Teaching Assistant for CMSC 131, CMSC 132**, Fall 2017, 2018
 Object Oriented Programming,
 University of Maryland.
 - **Teaching Assistant for Data Structures and Algorithms**, Spring 2014
 Sharif University of Technology.
 - **Teaching Assistant for Artificial Intelligence**, Spring 2015, 2016
 Sharif University of Technology.
 - **Teaching Assistant for Compilers**, Spring 2016
 Sharif University of Technology.
 - **Instructor of C++ Programming**, Summer 2014
 Summer Camp for IOI at Young Scholars Club, Tehran, Iran.

- Services**
 - **External Reviewer:**
 - **Journals:** Algorithmica, SIDMA.
 - **Conferences:** WWW'20, AAI'20, SODA'20, NeurIPS'19, FOCS'19, ICALP'19, SIGMETRICS'19, STOC'18, ISAAC'18, SIGMETRICS'18, SODA'17.

- Skills**
 - Expert in C/C++, Java, Python, Bash.
 - Familiar with HTML, CSS, JavaScript, SQL, Matlab, L^AT_EX.
 - Native GNU/Linux user.
 - Languages: Persian (Native), English (Fluent), Italian (Learning).

- References**
 - Available upon request.