Alireza Farhadi

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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**, Aug. 2016- Present
  Maryland, USA. **GPA: 3.95/4**
  Ph.D. in Computer Science.
  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

- **Streaming and Small Space Approximation Algorithms for Edit Distance and Longest Common Subsequence**
  Kuan Cheng, *Alireza Farhadi*, MohammadTaghi Hajiaghayi, Zhengzhong Jin, Xin Li, Aviad Rubinstein, Saeed Seddighin, Yu Zheng
  *Proceedings of the 48th International Colloquium on Automata, Languages, and Programming (**ICALP'21**)*
- **Almost Envy-freeness, Envy-rank, and Nash Social Welfare Matchings**
  Alireza Farhadi, MohammadTaghi Hajiaghayi, Mohammad Latifian, Masoud Seddighin, Hadi Yami
  *Proceedings of the 35th AAAI Conference on Artificial Intelligence (**AAAI'21**)*
- **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
  - ◇ *Journal version appeared in **SIAM Journal on Computing (SICOMP)***
  - ◇ *A preliminary version appeared in 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**)*

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 Google Research, New York, Summer 2020
  Hosts: Steven Delong, Rad Niazadeh, Balasubramanian Sivan,
  Research focused on designing efficient online algorithms for matching of reusable resources.
- **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

- **Program Committee**: AAAI'21
- **External Reviewer**:
  - **Journals**: Algorithmica, SIDMA.
  - **Conferences**: SIGMETRICS'21, FOCS'20, RANDOM'20, EC'20, STOC'20, WWW'20, AAAI'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, LaTeX.
- Native GNU/Linux user.
- Languages: Persian (Native), English (Fluent), Italian (Learning).

References

- Available upon request.