

# Mohammad Roghani

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## EDUCATION

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**Stanford University,**

*Ph.D. in Management Science and Engineering*

2021 – Present

Stanford, CA

- Advisors: Aviad Rubinstein, Amin Saberi

**Stanford University,**

*M.Sc. in Management Science and Engineering*

2021 – 2023

Stanford, CA

**Sharif University of Technology**

*B.Sc. in Software Engineering*

2015 – 2020

Tehran, Iran

## RESEARCH INTERESTS

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- Theoretical Computer Science
- Sublinear Algorithms
- Dynamic Algorithms
- Online Algorithms

## PUBLICATIONS (AUTHOR NAMES IN ALPHABETICAL ORDER)

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- **A 0.51-Approximation of Maximum Matching in Sublinear  $n^{1.5}$  Time**  
S. Mahabadi, M. Roghani, J. Tarnawski.  
International Colloquium on Automata, Languages and Programming (ICALP 2025).
- **Stable Matching with Interviews**  
I. Ashlagi, J. Chen, M. Roghani, A. Saberi.  
Innovations in Theoretical Computer Science (ITCS 2025).
- **Sublinear Metric Steiner Tree via Improved Bounds for Set Cover**  
S. Mahabadi, M. Roghani, J. Tarnawski, A. Vakilian.  
Innovations in Theoretical Computer Science (ITCS 2025).
- **Hardness of Approximate Sperner and Applications to Envy-Free Cake Cutting**  
R. Gao, M. Roghani, A. Rubinstein, A. Saberi.  
IEEE Symposium on Foundations of Computer Science (FOCS 2024).
- **Bipartite Matching in Massive Graphs: A Tight Analysis of EDCS**  
A. Azarmehr, S. Behnezhad, M. Roghani.  
International Conference on Machine Learning (ICML 2024).
- **Sublinear Algorithms for TSP via Path Covers**  
S. Behnezhad, M. Roghani, A. Rubinstein, A. Saberi.  
International Colloquium on Automata, Languages and Programming (ICALP 2024).
- **Approximating Maximum Matching Requires Almost Quadratic Time**  
S. Behnezhad, M. Roghani, A. Rubinstein.  
ACM Symposium on Theory of Computing (STOC 2024).
- **Fully Dynamic Matching:  $(2 - \sqrt{2})$ -Approximation in Polylog Update Time**  
A. Azarmehr, S. Behnezhad, M. Roghani.  
ACM-SIAM Symposium on Discrete Algorithms (SODA 2024).
- **Local Computation Algorithms for Maximum Matching: New Lower Bounds**  
S. Behnezhad, M. Roghani, A. Rubinstein.  
IEEE Symposium on Foundations of Computer Science (FOCS 2023).
- **Sublinear Time Algorithms and Complexity of Approximate Maximum Matching**  
S. Behnezhad, M. Roghani, A. Rubinstein.  
ACM Symposium on Theory of Computing (STOC 2023).

- **Beating Greedy Matching in Sublinear Time**  
S. Behnezhad, M. Roghani, A. Rubinstein, A. Saberi.  
ACM-SIAM Symposium on Discrete Algorithms (**SODA 2023**).
- **Improved Online Contention Resolution for Matchings and Applications to the Gig Economy**  
T. Pollner, M. Roghani, A. Saberi, D. Wajc.  
ACM Conference on Economics and Computation (**EC 2022**).
- **Sequential Importance Sampling for Estimating Expectations over the Space of Perfect Matchings**  
Y. Alimohammadi, P. Diaconis, M. Roghani, A. Saberi.  
**Annals of Applied Probability** 33 (2), 799-833 .
- **Beating the Folklore Algorithm for Dynamic Matching**  
M. Roghani, A. Saberi, D. Wajc.  
Innovations in Theoretical Computer Science (**ITCS 2022**).
- **Complexity of Computing the Anti-Ramsey Numbers for Paths**  
S.A. Amiri, A. Popa, M. Roghani, G. Shahkarami, R. Soltani, H. Vahidi.  
International Symposium on Mathematical Foundations of Computer Science (**MFCS 2020**).
- **Some Results on Dominating Induced Matching**  
S. Akbari, H. Baktash, A. Behjati, A. Behmaram, M. Roghani.  
**Graphs and Combinatorics** 38 (3), 1-8
- **TPS (Task Preparation System): A Tool for Developing Tasks in Programming Contests**  
K. Mirjalali, A.K. Mohtashami, M. Roghani, H. Zarrabi-Zadeh.  
**Olympiads in Informatics**, 2019, Vol. 13, 209 - 215.

## HONORS AND AWARDS

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- Recipient of the Dantzig-Lieberman Operations Research **Graduate Fellowship**, United States, 2024.
- Recipient of the Krishnan Shah **Graduate Fellowship**, United States, 2023.
- Recipient of the Charles and Katharine Lin **Graduate Fellowship**, United States, 2022.
- Recipient of the Eltoukhy Family **Graduate Fellowship**, United States, 2021.
- **Gold Medal** in the National Olympiad in Informatics, Iran, 2014.
- **Silver Medal** in the Asia Pacific Olympiad in Informatics (APIO), Indonesia, 2015.
- **2<sup>nd</sup>, 3<sup>rd</sup> Team** in Regional Contests of ACM-ICPC West Asia Region, Tehran Site, respectively in 2015 and 2017.

## INTERNSHIPS & VISITS

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| <b>Microsoft Research</b><br><i>Research Intern at Algorithm Group</i>  | June. 2024 – September. 2024<br>Redmond, WA                                     |
| <b>Simons Institute for the Theory of Computing</b><br><i>Visiting Graduate Student at Sublinear Algorithms Program</i>           | May. 2024 – August. 2024<br>Berkeley, CA  |
| <b>Uber Technologies Inc</b><br><i>Applied Scientist Intern at Pricing Team</i>   | June. 2023 – September. 2023<br>San Francisco, CA                               |
| <b>Simons Institute for the Theory of Computing</b><br><i>Visiting Graduate Student at Data-Driven Decision Processes Program</i> | September. 2022 – December. 2022<br>Berkeley, CA                                |
| <b>Uber Technologies Inc</b><br><i>Software Engineering Intern at Pricing Team</i>  | June. 2022 – September. 2022<br>San Francisco, CA                               |
| <b>Max Planck Institute for Informatics</b><br><i>Research Intern at Algorithm and Complexity Group</i>                           | July. 2019 – August. 2019, January 2020 – February 2020<br>Saarbrücken, Germany |
| <b>University of Tartu</b><br><i>Research Intern at Theory Group</i>  | July. 2018 – September. 2018<br>Tartu, Estonia                                  |

## TEACHING

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- **Teaching Assistant at Stanford University:** Market Design for Engineers, Design and Analysis of Algorithms.
- **Teaching Assistant at Sharif University of Technology:** Design of Algorithms, Data Structures, Probability and Statistics, Discrete Structures.

## SERVICES

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I have reviewed several papers at theoretical computer science conferences such as **AAAI 2021, APPROX 2022, ESA 2022, SODA 2023, ICALP 2023, FOCS 2023, SODA 2024, SOSA 2024, STOC 2024, ICALP 2024, ESA 2024, STACS 2025, IPCO 2025, SODA 2025.**