

# Mohammad Roghani

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## EMPLOYMENT

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Google Research,  
*GeoAI Team*

2025 – Present  
Mountain View, CA

## EDUCATION

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Stanford University,  
*Ph.D. in Operation Research*

2021 – 2025  
Stanford, CA

- Advisors: Aviad Rubinstein, Amin Saberi

Stanford University,  
*M.Sc. in Operation Research*

2021 – 2023  
Stanford, CA

Sharif University of Technology  
*B.Sc. in Software Engineering*

2015 – 2020  
Tehran, Iran

## PUBLICATIONS (AUTHOR NAMES IN ALPHABETICAL ORDER)

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- **Sublinear Metric Steiner Forest via Maximal Independent Set**  
S. Mahabadi, M. Roghani, J. Tarnawski, A. Vakilian  
ACM-SIAM Symposium on Discrete Algorithms 2026 (**SODA 2026**).
- **Improved Approximation for Ranking on General Graphs**  
M. Derakhshan, M. Roghani, M. Saneian, T. Yu  
ACM-SIAM Symposium on Discrete Algorithms 2026 (**SODA 2026**).
- **A Simple Analysis of Ranking in General Graphs**  
M. Derakhshan, M. Roghani, M. Saneian, T. Yu  
SIAM Symposium on Simplicity in Algorithms (**SOSA 2026**).
- **Tight Pair Query Lower Bounds for Matching and Earth Mover's Distance**  
A. Azarmehr, S. Behnezhad, M. Roghani, A. Rubinstein.  
IEEE Symposium on Foundations of Computer Science (**FOCS 2025**).
- **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>Morgan Stanley</b> <i>Intern at Machine Learning Research Group</i>	June. 2025 – August. 2025 New York, NY
<b>Microsoft Research</b> <i>Research Intern at Algorithm Group</i>	June. 2024 – September. 2024 Redmond, WA
<b>Simons Institute for the Theory of Computing</b> <i>Visiting Graduate Student at Sublinear Algorithms Program</i>	May. 2024 – August. 2024 Berkeley, CA
<b>Uber Technologies Inc</b> <i>Applied Scientist Intern at Pricing Team</i>	June. 2023 – September. 2023 San Francisco, CA

**Simons Institute for the Theory of Computing***Visiting Graduate Student at Data-Driven Decision Processes Program*

September. 2022 – December. 2022

Berkeley, CA

**Uber Technologies Inc***Software Engineering Intern at Pricing Team*

June. 2022 – September. 2022

San Francisco, CA

**Max Planck Institute for Informatics***Research Intern at Algorithm and Complexity Group*

July. 2019 – August. 2019, January 2020 – February 2020

Saarbrücken, Germany

**University of Tartu***Research Intern at Theory Group*

July. 2018 – September. 2018

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, RANDOM 2025, ESA 2025, STOC 2025, FOCS 2025.**