

# Mohammad Roghani

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## EDUCATION

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**Stanford University, GPA: 4.06**

*Ph.D. in Management Science and Engineering*

Jan. 2021 – Present

Stanford, CA

- Advisor: Prof. Amin Saberi

**Stanford University, GPA: 4.06**

*M.Sc. in Management Science and Engineering*

Jan. 2021 – Dec. 2022

Stanford, CA

**Sharif University of Technology**

*B.Sc. in Software Engineering*

Sep. 2015 – August. 2020

Tehran, Iran

## RESEARCH INTERESTS

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- Theoretical Computer Science
- Sublinear Algorithms
- Approximation Algorithms
- Dynamic Algorithms

## PUBLICATIONS

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- **Beating Greedy Matching in Sublinear Time**  
S. Behnezhad, M. Roghani, A. Rubinstein, A. Saberi.  
To appear in the 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.  
To appear in the **Annals of Applied Probability**.
- **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.  
Proc. of the 45th 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 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.
- Recipient of Stanford University **Doctoral 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.

## TEACHING

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

## INTERNSHIPS

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### Uber Technologies Inc

June. 2022 – September. 2022

*Software Engineering Internship*

San Francisco, CA

- Working in the rider surge pricing team on designing and implementing pricing algorithms.

### Max Planck Institute for Informatics

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

*Research Internship*

Saarbrücken, Germany

- Welfare approximation in coordination games on graphs.
- Complexity of computing the anti-Ramsey numbers for paths.

### University of Tartu

July. 2018 – September. 2018

*Research Internship*

Tartu, Estonia

- Design and implementation of a high-level quantum programming language in C++ that translates to different quantum assembly languages such as QASM.

## VOLUNTEER EXPERIENCES

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### IOI (International Olympiad in Informatics)

July. 2016 – August. 2017

*Software Developer*

Tehran, Iran

- Development of task preparation system (TPS) that has been used for preparing programming tasks in International Olympiad in Informatics (IOI) 2017 in Tehran. It has both a command-line interface that developed in bash and a web interface that developed in Django. The report of this project can be found in the publications section.

## OTHER ACTIVITIES

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- **ACM-ICPC Asia Tehran Regional Contest 2019** Scientific Committee
- **International Olympiad in Informatics 2017 and 2019** Host Scientific Committee
- **International Olympiad in Informatics 2018** Task Author
- **National Olympiad in Informatics (2015-2019)** Scientific Committee
  - \* Teaching algorithms and graph theory
  - \* Designing problems for training camps
  - \* Preparing programming contests for selecting Iran national team