

## RESEARCH INTERESTS

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- Algorithmic Game Theory
- Combinatorial Optimization
- Computational Social Choice
- Complexity Theory

## EDUCATION

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- **B. Sc. in Computer Engineering** 2016 – Present  
Sharif University of Technology, Tehran, Iran **GPA: 19.10/20**  
Selected Courses: **Major GPA : 19.51/20 (28 Courses)**
  - Algorithmic Game Theory (20/20)
  - Combinatorial Optimization (18.7/20)
  - Stochastic Processes (19.8/20)
  - Automata, Computability, and Complexity Theory (18.5/20)
  - Design and Analysis of Algorithms (20/20)
  - Probability and Statistics (20/20)
  - Linear Algebra (19/20)
  - Artificial Intelligence (19.9/20)
- Diploma in Physics and Mathematics Discipline 2012 – 2016  
Allameh Helli High School, Tehran, Iran GPA: 19.58/20

## REFEREED CONFERENCE PAPERS

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- [Faster Algorithms for Quantitative Analysis of MCs and MDPs with Small Treewidth](#)  
**Ali Asadi**, Krishnendu Chatterjee, Amir Kafshdar Goharshady, Kiarash Mohammadi, Andreas Pavlogiannis  
in *The 18<sup>th</sup> International Symposium on Automated Technology for Verification and Analysis (ATVA'20)*, 2020.

## WORKING PAPERS

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- [Inductive Reachability Witnesses](#)  
**Ali Asadi**, Krishnendu Chatterjee, Hongfei Fu, Amir Kafshdar Goharshady, Mohammad Mahdavi  
*Submitted to The 42<sup>nd</sup> Conference on Programming Language Design and Implementation (PLDI'21).*

## RESEARCH EXPERIENCE

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- **Research Intern and Remote Collaboration, IST Austria** Summer 2019  
Worked in the Chatterjee Group under the supervision of [Prof. Krishnendu Chatterjee](#).  
Scholarship awarded by the *Austrian Agency for International Cooperation in Education and Research (OeAD-GmbH)*.
  - **Faster Quantitative Analysis of MCs and MDPs with Small Treewidth:**  
Designed a linear-time algorithm to compute the quantitative objectives in MCs/MDPs.  
Implemented new and previous algorithms, and experimented with them.
  - **Inductive Reachability Witnesses:**  
Proposed a novel semi-complete approach for reachability analysis that can handle general programs, and can be entirely automated for a wide family of programs. Our approach extends techniques from both invariant generation and ranking-function synthesis to reachability analysis through the notion of Inductive Reachability Witnesses.
  - **Efficient Parameterized Algorithm for Finding Reference Affinity Groups:**  
Worked on designing an efficient parameterized algorithm for Finding Reference Affinity Groups, an approach of optimal cache management. We found an exciting combinatorial proof showing that the problem is W[1]-hard with respect to the cache parameters.
- **Research Assistant, Sharif University of Technology** Feb. 2020 – Present  
Worked in the Theory Group under the supervision of [Prof. Mohammad Ghodsi](#).
  - **Existence of Approximate EFX for Santa-Claus Valuations:**  
Worked on showing that a better approximate EFX allocation always exists when every agent has a Santa-Claus valuation.

## HONORS AND AWARDS

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- **Silver medal** in the 10<sup>th</sup> Asia-Pacific Informatics Olympiad (APIO) 2016
- **Gold medal** in the 25<sup>th</sup> Iranian National Olympiad in Informatics (INOI) 2015  
Gold medals are awarded to 8 people selected after a year of competition among over 10000 students.
- **Silver medal** in the 24<sup>th</sup> Iranian National Olympiad in Informatics (INOI) 2014
- **2<sup>nd</sup> place** in the **ACM-ICPC** West Asia Regional Contest, Tehran, Iran. 2016
- **Iranian National Elites Foundation** grant for undergraduate studies 2014 – Present  
For outstanding academic success
- **National Organization for Development of Exceptional Talents (NODET)** member 2009 – 2016

## TEACHING AND SCIENTIFIC EXPERIENCE

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- **Teaching Assistant, CE Department, Sharif University of Technology**
  - Probability And Statistics, Instructor: Prof. Abolfazl Motahari Fall 2017
  - Data Structures and Algorithms, Instructor: Prof. Ali Sharifi-Zarchi Spring 2018
- **Member of Scientific Committee** of Programming Contests  
Designed programming contests and authored problems with an algorithmic theme.
  - **Iran's IOI Team Selection Exams** 2017
  - **INOI Summer Camp Programming Exams** 2016
- **Lecturer, Allameh Helli High-School** 2016 – 2018  
Taught Algorithms and Data Structures to students preparing for the National Olympiad in Informatics (INOI).
- **Lecturer, Allameh Tabatabaee High-School** 2016 – 2019  
Taught Algorithms and Data Structures to students preparing for the National Olympiad in Informatics (INOI).

## WORKING AND TECHNICAL EXPERIENCE

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- **Team Manager, Divar Co.** Sep. 2019 – Sep. 2020  
Led a team consisting of 10 software engineers in setting up infrastructure platforms and tools.
- **Software Engineer, CafeBazaar Co.** July 2017 – July 2019  
Contributed to the design, development, and maintenance of several systems and microservices, highlighting:
  - Designing microservices in the gRPC ecosystem, written in both Python and Go
  - Developing home-made tools, libraries, and systems around the gRPC ecosystem
  - Working with the private cloud infrastructure (Kubernetes)

## LEADERSHIP AND TEAMWORK EXPERIENCE

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- **Elected Member and Vice President of Students Scientific Chapter** 2018 – 2019  
SSC is a student committee concerned with directing the extra-curriculum activities who are elected by all students of the computer engineering department to a one-year term.

## SKILLS

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- **Programming:** Python, Go, C++, Java, R, SQL, Bash
- **Typesetting:** L<sup>A</sup>T<sub>E</sub>X
- **Web Technologies:** Django, Docker, Kubernetes, PostgreSQL