

# Erfan Alimohammadi

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## Research Interests

- Computer Vision
- Machine Learning
- Big Data
- Algorithm Design and Data Structures

## Education

### KTH Royal Institute of Technology

Stockholm, Sweden

RESEARCH INTERN

2020

- Using graph and machine learning algorithms for solving software and program analysis problems, under supervision of [Prof. Martin Monperrus](#)

### Shahid Beheshti University

Tehran, Iran

B.SC. IN COMPUTER ENGINEERING

2015 - 2020

- Selected courses: Introduction to Programming (20/20), Advanced Programming (20/20), Discrete Mathematics (19.75/20), Data Structures (20/20), Design and Analysis of Algorithms (19/20), Bachelor's Thesis Project (20/20), Computer Graphics (18.5/20)

### Allameh Helli High School

Tehran, Iran

DIPLOMA IN MATHEMATICS AND PHYSICS DISCIPLINE

2011 - 2015

- Affiliated with the [National Organization for the Development of Exceptional Talents \(NODET\)](#)

## Professional Experience

### Data Scientist

Tehran, Iran

BALAD MAPS

2020

- Balad is the most popular maps and navigation application in Iran, with a user-base of almost 5 million people.
- Determined the possible locations of speed bumps and traffic lights of Tehran, while storing users' GPS locations on big data servers.
- Used Variational Autoencoders in PyTorch, planar graphs, R-trees, etc. on real large datasets.
- Interviewed many people and helped Balad with setting the hiring process (as a member of the hiring committee).

### Software Engineer

Tehran, Iran

CAFE BAZAAR

2016 - 2018

- Cafe Bazaar is the most popular and successful Android application store in Iran, with a user-base of more than 40 million people.
- A member of App Discovery team and Inline Apps team.
- Interviewed many people to help Cafe Bazaar in the hiring process.
- Developed an admin panel for the executive team of Cafe Bazaar, using Python Django, HTML, CSS and Javascript.
- Developed a platform for Android developers to create some Android apps which there is no installation needed for them.

## Research Experience

### Thatcher Illusion and Its Effects on the Face Recognition Problem (Using VGGFace2)

2020

- I am a member of Shahid Beheshti University Computer Vision Group.
- Awarded as the best bachelor's thesis project in the university.
- The paper is being prepared to be submitted on [Perception Journal](#), under supervision of [Prof. Ebrahimi Moghadam](#).
- A small part of its source code is available on [GitHub](#).

### Supervised and Unsupervised Methods for Satellite Images Super Resolution

2020

- Was done for Balad Maps to create larger satellite images for Iran maps and to be used in production.
- I compared different methods on real large (300+ GB) datasets, based on PSNR metric.

### Using Planar and Bipartite Graphs for Map Merging

2019

- This research was done under supervision of [Dr. Amin Gheibi](#) as a computational geometric problem.
- Our purpose was to merge two maps of a city by modeling them to graphs and polygons (using NumPy, Matplotlib, and NetworkX).
- I presented this research as a [guest speaker at the 21th ACM-ICPC Asia Tehran Regional Contest](#).

## Online Courses

- [Machine Learning by Stanford University](#)
- [CS231n: Convolutional Neural Networks for Visual Recognition](#)

## Honors and Awards

### ACM-ICPC AND IOI RELATED

2017	<b>Silver Medal</b> , <a href="#">ACM-ICPC Asia Tehran Regional Contest</a>	<i>Tehran, Iran</i>
2017	<b>56th Rank</b> , <a href="#">ACM-ICPC World Finals</a> (from among 133 teams chosen from a field of 46,381 contestants)	<i>South Dakota, USA</i>
2016	<b>1st Rank</b> , <a href="#">ACM-ICPC Asia Lahore Regional Contest</a>	<i>Lahore, Pakistan</i>

### PROJECTS

2013	<b>The Best Project Award</b> , <a href="#">Allame Helli High School Seminar</a> (for an AVR-programmed project)	<i>Tehran, Iran</i>
2011	<b>The Best Project Award</b> , 8th NODET Young Researchers Festival (for " <a href="#">Persian Letters OCR</a> " project)	<i>Tehran, Iran</i>

### OTHER

2020	<b>96th Rank</b> , The Nationwide Entrance exam of Iranian universities (from among 10000 graduated students)	<i>Tehran, Iran</i>
2019	<b>80th Rank</b> , <a href="#">Huawei Neural Networks Challenge</a> (an onsite competition among 124 selected universities)	<i>Porto, Portugal</i>
2018	<b>Completed All Levels</b> , <a href="#">Google FooBar</a> (a secret challenge by Google, to examine your Java or Python skills)	

## Teaching and Mentoring Experience

### TEACHING ASSISTANTSHIP

<b>Computational Intelligence</b> , <a href="#">Dr. Malek</a> , Determining and grading the course projects.	<i>Fall '20</i>
<b>Design and Analysis of Algorithms</b> , <a href="#">Dr. Ghavamizadeh</a> , Held weekly TA sessions. Determined and graded numerous computer assignments.	<i>Spring '18, Fall '18, Spring '19</i>
<b>Data Structures</b> , <a href="#">Dr. Abin</a> , Held all TA sessions. Determined and graded the course projects.	<i>Fall '17, Spring '18, Fall '18, Spring '19</i>
<b>Statistics and Probabilities</b> , <a href="#">Dr. Safaei</a> , Handled general responsibilities.	<i>Fall '18</i>
<b>Data Structures</b> , <a href="#">Dr. Ebrahimi Moghaddam</a> , Handled general responsibilities.	<i>Fall '18</i>
<b>Advanced Programming</b> , <a href="#">Dr. Vahidi-Asl</a> , Held several TA sessions. Graded a computer assignment.	<i>Spring '17</i>
<b>Discrete Mathematics</b> , <a href="#">Dr. Safaei</a> , Helped with handling several TA sessions.	<i>Spring '17</i>
<b>Discrete Mathematics</b> , <a href="#">Dr. Abdoos</a> , Helped handling some TA sessions.	<i>Spring '17</i>
<b>Introduction to Programming</b> , <a href="#">Dr. Abdoos</a> , Held several TA sessions (with extra contents about Linux OS). Determined a computer assignment.	<i>Fall '16</i>

### OTHER

<b>Young Scholars' Club</b> , Taught the medalist students of National Olympiad in Informatics	<i>Fall 2020</i>
<b>Shahid Beheshti University</b> , Coached a team which got a <a href="#">bronze medal</a> at ACM-ICPC Asia Tehran Regional Contest	<i>Fall 2019</i>
<b>University of Tehran ACM Chapter</b> , Taught algorithm design and data structures	<i>Fall 2018</i>
<b>Allameh Helli High School</b> , Prepared students for Iranian National Olympiad in Informatics	<i>Summer 2015</i>

## Skills

**Technical:** Pascal, Delphi, C++, Python, Java, Git, Django, Docker, Ubuntu, Bash, Raspberry Pi, Adobe Photoshop  
**Languages:** Persian (mothertongue), English ([Duolingo English Test: 130/160](#), equivalent to [TOEFL iBT 108-112](#))

## Selected Projects

<b><a href="#">Fake Job Posting Detection</a></b>	<i>2020</i>
• Classifying job postings with deep learning (using PyTorch, Skorch, and scikit-learn basic NLP tools)	
<b><a href="#">Commit Type Detection</a></b>	<i>2020</i>
• Classifying Git commits with deep learning (using PyTorch, and scikit-learn basic NLP tools)	
<b><a href="#">Map Coloring</a></b>	<i>2019</i>
• Backtracking on graphs for coloring a map with four colors (using NumPy, Matplotlib, and OpenCV)	

## Other Activities

**Opensource Contribution:** to a [repository](#) with more than 90000 users, as one of [TheAlgorithms](#) organization maintainers  
**International Problemsettings:** [CodeChef COOK104](#), [HackerEarth March Circuits '19](#), [CodeChef LTIME70](#), [Codeforces #261](#)