Erfan Alimohammadi

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Research Interests

- Computer Vision   • Machine Learning   • Algorithm Design and Data Structures   • Computational Geometry

Education

KTH Royal Institute of Technology   *Stockholm, Sweden*
RESEARCH INTERN   *2020*
- Using machine learning algorithms for solving software problems, under supervision of Prof. Martin Monperrus

Shahid Beheshti University   *Tehran, Iran*
B.SC. IN COMPUTER ENGINEERING   *2015 - 2020*
- Related 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)

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 more than 4 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, graphs, geometric data structures, etc. on real large datasets.
- Interviewed many people to help Balad in the hiring process.

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'm a member of Shahid Beheshti University Computer Vision Group.
- Awarded as the best bachelor's thesis 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.
- I compared different methods on real large 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	**Silver Medal**, ACM-ICPC Asia Tehran Regional Contest	*Tehran, Iran*
2017	**56th Rank**, ACM-ICPC World Finals (from among 133 teams chosen from a field of 46,381 contestants)	*South Dakota, USA*
2016	**1st Rank**, ACM-ICPC Asia Lahore Regional Contest	*Lahore, Pakistan*

Projects

2013	**The Best Project Award**, Allame Helli High School Seminar (for an AVR-programmed project)	*Tehran, Iran*
2011	**The Best Project Award**, 8th NODET Young Researchers Festival (for "Persian Letters OCR" project)	*Tehran, Iran*

Other

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

Teaching and Coaching Experience

Teaching Assistantship

Computational Intelligence, Dr. Malek,	*Fall '20*
Design and Analysis of Algorithms, Dr. Ghavamizadeh, Held some TA sessions. Determined and graded some computer assignments.	*Spring '18, Fall '18, Spring '19*
Data Structures, Dr. Abin, Held TA sessions. Determined and graded the course projects.	*Fall '17, Spring '18, Fall '18, Spring '19*
Statistics and Probabilities, Dr. Safaei,	*Fall '18*
Data Structures, Dr. Ebrahimi Moghaddam,	*Fall '18*
Advanced Programming, Dr. Vahidi-Asl, Held some TA sessions. Graded a computer assignment.	*Spring '17*
Discrete Mathematics, Dr. Safaei, Helped handling some TA sessions.	*Spring '17*
Discrete Mathematics, Dr. Abdoos, Helped handling some TA sessions.	*Spring '17*
Introduction to Programming, Dr. Abdoos, Held some TA sessions (with extra contents about Linux OS). Determined a computer assignment.	*Fall '16*

Other

Young Scholars Club, Teaching to the medalist students of National Olympiad in Informatics	*Fall 2020*
Shahid Beheshti University, Coaching a team which got a bronze medal at ACM-ICPC Asia Tehran Regional Contest	*Fall 2019*
University of Tehran ACM Chapter, Teaching algorithm design and data structures	*Fall 2018*
Allameh Helli High School, Preparing students for Iranian National Olympiad in Informatics	*Summer 2015*

Skills

Technical:	Pascal, Delphi, C++, Python, Java, Git, Django, Docker, Ubuntu, Bash, Raspberry Pi, Adobe Photoshop
Languages:	Persian (mothertongue), English (upper-intermediate)

Notable (Recent) Projects

Fake Job Posting Detection *2020*
• Classifying job postings with deep learning (using PyTorch, Skorch, and scikit-learn basic NLP tools)

Commit Type Detection *2020*
• Classifying Git commits with deep learning (using PyTorch, and scikit-learn basic NLP tools)

Map Coloring *2019*
• Backtracking on graphs for coloring a map with four colors (using NumPy, Matplotlib, and OpenCV)

Other Activities

Problemsetting for International Algorithmic Contests
• CodeChef March Cook-Off 2019, HackerEarth March Circuits 2019, CodeChef March LunchTime 2019, Codeforces Round #261