ALI **MORTAZAVI** | Curriculum Vitæ

(Last update Aug. 2018)

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EDUCATION

B.Sc. in Computer Software Engineering 2013 – 2017

Amirkabir University of Technology (Tehran Polytechnic)

[Top ranked university in Iran and 85th in the World in CS according to US News ranking]

CGPA: Overall **18.47** / 20

CS courses **18.89** / 20

Diploma in Mathematics and Physics 2009 - 2013

Nikan High school

GPA: **19.16** / 20

RESEARCH INTERESTS

In general, I am interested in applied mathematics, probability and statistics.
I like to study how a human can understand concepts and how we can encode knowledge in computers so they can infer like a human. Now, with the growth of Deep Learning Systems, I am really interested in understanding what really Deep Neural Networks learn!
I am also interested in how we can add some mechanism that guaranty that computers will be safe for human species.
My research interest is:

- Statistical Machine Learning
- Deep Neural Networks
- Optimization
- Probabilistic Graphical Model
- Natural Language Processing
- Game Theory
- Reinforcement Learning

RESEARCH EXPERIENCES

June 2017 – August 2017

Implementation and Evaluation of "Genetic" and "Simulated Annealing" Algorithms for Extended Travelling Salesman Problem [github]

(B.SC. Project)
Under the supervision of **Dr. Razazi** at Amirkabir University of Technology
In this project, we tested the performance of two different heuristic approaches in solving an NP-Complete Problem. This problem is an extended version of Travelling Salesman Problem. Since our approach is heuristic, there is not guaranty to find a global optimum answer. So we needed some other exact approach for computing the global optimum. For this purpose, we reduced our problem to an Integer Linear Programming Instance. So in small graph samples, we could compare our results with optimum solution and for the large graph samples, we just compared our two different methods with each other.

TEACHING EXPERIENCES

Teaching Assistant, Probability and Statistics for Engineering Winter-Spring 2018
Dr. Haeri
CEIT dep., Amirkabir University of Technology

Teaching Assistant, Design of Algorithms Course Winter-Spring 2017
Dr. Rahmati
CS dep., Amirkabir University of Technology

Teacher, Class for Olympiad Preparation Winter-Spring 2017 and 2018
Intro. To Theory of Computation, Algorithm Design
CEIT dep., Amirkabir University of Technology

Teaching Assistant, Design of Algorithms Course Winter-Spring 2016
Dr. Mousavi
CEIT dep., Amirkabir University of Technology

HONORS AND AWARDS

Ranked 3rd in term of CGP among student of computer engineering of 2013 Entrance *2017*
At Department of Computer Engineering and Information Technology of AmirKabir University

Ranked 19th in the National Scientific Olympiad of Computer Engineering *2016*
http://olympiad.sanjesh.org/Fa/ResultDetail.aspx?CID=109&BID=10

Selected as a member of National Scientific Olympiad in Computer Engineering Team of AmirKabir University of Technology *2016*

Ranked Top 0.5% In The Country-wide University Entrance Exam *2013*
In more than 250'000 participants

TALKS

May 2018

A brief summary to The Theory of Computation

A presentation (in Persian) for *Students in Introduction to The Theory of Computation* course. I explained why we see problems as a language and why it is important to categorize them by different sets.
CEIT dep., Amirkabir University of Technology.

May 2017

What is Natural Language Processing

A presentation (in Persian) for *Data Mining* course about the general concept of NLP and approaches towards natural language understanding in AI.
CEIT dep., Amirkabir University of Technology.

June 2016

Can computers have feelings?

A presentation (in Persian) for *Research Method and Technical Report Writings* course based on Alan Turing's famous paper "Computing machinery and intelligence".
CEIT dep., Amirkabir University of Technology.

TOP ACADEMIC COURSE PROJECTS

Image Denoising and Segmentation Using Markov Random Field [github]
Optimizing Energy Function using Simulated Annealing, Comparing different Color Spaces results

Text Summarization [github]
Extract important sentence as a summary using page rank algorithm and word2vec.

Text Classification [github]
Using different metrics (mutual information, information gain, etc.) for extracting important words for document classification task

Grade prediction
Regression, Normalization, Visualization. using Python, *Foundations of Data Mining*

Design and implementation of a smart Pacman agent
Local search algorithms, Optimization algorithms like GA using Python, *Artificial Intelligence*

Implementation of a 2d strategic game with multi-player support
Multi-threading using Java, *Advanced Computer Programming*

ATTENDED SEMINARS AND CONFERENCES

Deep Learning Summer School at University of Tehran August 2018
An introduction to Deep Learning and different research Areas.
http://acm.ut.ac.ir/deeplearning/

Block Chain and Cryptocurrency February 2018
An introduction to Block Chain Mechanism and different Cryptocurrency systems. By Dr. hatami and Dr. Salavati

Workshop on Game Theory February 2017
An introduction by Dr. Salavati to Game Theory Concepts (Nash Equilibrium, Expected Pay off, Repeated Games, Auctions, etc.)

OTHER INTERESTS AND ACTIVITIES

Piano Jun 2018
Recently I've started to learn piano.

AmirKabir Programming League Staff April 2016
I was member of problem setting team.

Basketball June 2015
Member of Basketball team in Computer Engineering Department

TECHNICAL SKILLS

Programming Languages
Python, C, C++, Java
Data Analysis Tools and Frameworks
NumPy, Scikit, Pandas, NLTK

LANGUAGES

Persian (Farsi): Native

English: Intermediate Level