Mohamad Assari

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Education

Double Major Student in Computer Engineering and Physics

B.Sc. in Computer Engineering
Amirkabir University of Technology (Tehran Polytechnic), Iran **2016-present**
GPA: 3.70/4.00 (**17.26**/20) (100 units)

B.Sc. in Physics
Amirkabir University of Technology (Tehran Polytechnic), Iran **2014-2019**
GPA: **3.78**/4.00 **(17.66**/20**)** (141 units)

High School Diploma in Mathematics & Physics
NODET(Tizhushan) Beheshti high school Rey, Tehran, Iran **2010-2014**
GPA: **19.25**/20

Research Interests

Algorithms
Complexity Theory
Graph Theory
Game Theory

Honors and Awards

Ranked 1st in second semester and 2nd in Cumulative GPA among all undergraduate students in Physics Department, Amirkabir University of Technology (Tehran Polytechnic), Iran - 2019

Scored **830/990** in **Physics subject GRE** test - September 2018

Passing **27 units** in one semester with **GPA of 18.61/20** - 2018

Granted permission to double major in any field **fully funded** due to having a GPA of more than 17/20 for all first four semesters - 2016

Ranked Top **4%** in the National Entrance Examination for Iranian Universities, **Mathematics and Engineering** - 2014

Ranked Top **2%** in the National Entrance Examination for Iranian Universities, **Foreign Languages** - 2014

Accepted in entrance exam of NODET(National Organization for Development of Exceptional Talents) high schools - 2010

Accepted in entrance exam of NODET(National Organization for Development of Exceptional Talents) junior high schools - 2007

Selected Courses

Computer Engineering courses:

Algorithm Design The only student scoring full mark in this course	**20**/20
Operating Systems	**19.9**/20
Application of Artificial Intelligence	**17.93**/20
Principles of Database Design	**16.2**/20
Engineering Statistics	**19.25**/20
Applied Linear Algebra	**16.31**/20
Software Engineering I	**18.60**/20
Theory of Machines & Languages	**16.5**/20
Research Method & Report Writings	**19**/20
Technical English	**18.58**/20
Math. II	**18**/20
Math. I	**19**/20
Engineering Mathematics	**16**/20
Advanced Computer programming	**16**/20
Principles of Computer & programming	**20**/20

Physics courses:

Modern Physics	**19.25**/20
Electromagnetism(I)	**18**/20
Laser Physics	**20**/20
Optics	**19**/20
Bio Physics	**17**/20
Acoustics	**19.5**/20
Project Physics	**20**/20
Math. Physics(III)	**17**/20
Specialized English Physics	**19.5**/20
Solid State Physics	**18**/20
Thermodynamics & Statistical Physics(II)	**20**/20

Analytical Mechanics(II)	**19.71**/20
Analytical Mechanics(I)	**20**/20
Astronomy & Astrophysics	**20**/20

Teaching Assistant

Algorithm Design - 2019
Amirkabir University of Technology, Under Supervision of Prof. Bourbour

Research Experience

Research & Development Engineer at Mivanet Company
Topics: Graph sampling from distance matrices using Spanning trees(minimum spanning tree, maximum spanning tree, low weighted and high weighted random walk spanning trees) and visualization of closeness centrality and betweenness centrality in these graphs
The project was developed using some python libraries such as networkx, numpy and graphviz. Click to visit - May 2019 to Present

Computer Skills

Languages: Python, Java, C & C++, SQL

Typesetting: Latex, LibreOffice, Microsoft Word

Operating Systems: Linux (Manjaro, Ubuntu), Windows

Languages

Persian: Mother Tongue (Native)
English: Full Professional Proficiency (Fluent)
TOEFL iBT (November 2, 2018): 95/120
(Reading: 26, Listening 23, Speaking 24, Writing 22)
Arabic: Basic

Selected Projects (click to visit)

Project 1 Algorithm Design: Implementation of Travelling salesman problem using both nearest neighbor algorithm and Exhaustive algorithm also comparing their complexities

Project 2 Algorithm Design: Devising an efficient dynamic programming algorithm that finds optimal solution of a **Dynamic Programming** problem

Project 1 Artificial Intelligence: Solving Sliding Puzzle problem using A*, BFS, Bilateral, DFS and Uniform cost algorithms also comparing their complexities

Project 2 Artificial Intelligence: Devising a genetic algorithm for regression of third degree polynomial

Project Data Structures: Implementation of a text query using BST, TST and Trie That can also take logical phrases as input

Project 1 Advanced Programming: Implementation of XO game using Automata

Project 2 Advanced Programming: Design and Implementation of Pacman game using multithreading

Project 1 Theory of Machines & Languages: Implementation of DFA to detect whether or not a string belongs to regular languages

Project 2 Theory of Machines & Languages: changing NDFA to DFA

Expertise

Algorithm and Data Structure: Complexity Analysis, Dynamic Programing, Network Flow, Graph and Traversal Algorithms, Familiar with networkx, numpy, graphviz libraries, Data Structures (Queues, Stacks, Hashing, Balanced Search Trees, Priority Queues, and Heaps).

Mathematics: Graph theory, Combinatorics, Discrete Mathematics, Linear Algebra, Vector Calculus, and Calculus.

Object Oriented Programming: Inheritance, Polymorphism, Encapsulation, and Abstraction

References

- **Sara Bourbour Hosseinbeigi, Assistant Professor**:
  email: sbourbou@mymail.mines.edu
  Computer Engineering and IT Department, Amirkabir University of Technology

- **Ahmad Nickabadi, Assistant Professor**:
  email: nickabadi@aut.ac.ir
  Computer Engineering and IT Department, Amirkabir University of Technology

- **Parviz Parvin, Professor**:
  email: parvin@aut.ac.ir
  Energy Engineering and Physics Department, Amirkabir University of Technology