Sara **Tavakoli**

COMPUTER ENGINEERING STUDENT

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Education

University of Tehran *Tehran, Iran*

BSc. IN COMPUTER ENGINEERING (SOFTWARE ENGINEERING MAJOR) *Sep. 2017 - Present*

- **GPA of last two years: 4/4 (18.69/20)**
- **CGPA: 3.8/4 (17.73/20)**
- Related Courses: Artificial Intelligence (**19.5/20**), Internet Engineering (**19.3/20**), Cyber-Physical Systems (**18/20**), Computer Networks (**20/20**), Parallel Programming (**19.4/20**), Programming Languages and Compiler (**19.5/20**), Database Design (**18.4/20**), Advanced software design (**19.67/20**)

Salam Vanak High School *Tehran, Iran*

DIPLOMA OF MATH AND PHYSICS *2013 - 2017*

- **CGPA: 4/4 (19.8/20)**

Research Interests

- Machine Learning
- Natural Language Processing
- Artificial Intelligence
- Software Engineering
- Data Science
- Social Networks

Honors & Awards

Ranked in the Top 0.1% : In Iranian University Entrance Exam among 148,000 participants

Bachelor Scholarship : Awarded a 4-year full scholarship from **University of Tehran**

Iranian Mathematics Olympiad : Accepted in first round of Iranian Mathematics Olympiad

Research Experiences

Data Analytics Research Assistant *University of Tehran*

UNDER SUPERVISION OF DR. B. BAHRAK AND DR. Y. YAGHOOBZADEH *June. 2021 - Present*

- Comprehending the concepts and methods of Natural Language Processing (NLP)
- Employing various Topic modeling methods on Persian Tweets to find the most productive and efficient technique
- Currently I am working on the preparation of our manuscript in which we assess people's inclination towards specific social issues by measuring the potency of words connotation in given tweets

Data Scientist Intern *University of Tehran*

UNDER SUPERVISION OF DR. B. BAHRAK *June. 2021 - Aug. 2021*

- During this internship, I completed "Hands-on Machine Learning with Scikit-Learn, Keras, and TensorFlow" book's projects and exercises while getting familiar with machine learning concepts in Python

Teaching Experiences

Artificial Intelligence Teaching Assistant *University of Tehran*

DR. Y. YAGHOOBZADEH AND DR. H. MORADI AND DR. H. FADAEI *Dec. 2020 - Present*

- Designing projects, assignments and quizzes according to course curriculum
- Recapitulating and reviewing course content for eager students before class projects
- Utilizing online resources to keep my knowledge up to date regarding course contents

Operating Systems Teaching Assistant *University of Tehran*

DR. M. KARGAHI *Dec. 2020 - Present*

- Designing projects and quizzes according to course curriculum
- Running question and answer sessions before mid-term exams
- Compiling inclusive and in-depth reports from students progress and results

Discrete Mathematics Teaching Assistant *University of Tehran*

PROF. S. MOAHMMADI *Feb. 2020 - Feb. 2021*

- Designing assignments and quizzes according to course curriculum
- Counseling and guiding students throughout their assignments
- Designing challenging questions and archiving them to be used in voluntary contests

Work Experiences

Junior Software Engineer *Tehran, Iran*
DIGIKALA *July. 2019 - Dec. 2019*
- Hands-on experience working with technologies like PHP, MySql, Redis, Docker, Git, ci-cd (Jenkins).
- Collaborating cross-functionally with business users, project managers and other engineers to implement practical solutions
- Providing ongoing maintenance and development in the main web page of **Digikala** and **Digistyle**

Software Engineer Summer camp *Tehran, Iran*
DIVAR *Aug. 2021*
- Attending several workshops including Django, Docker, Kubernetes, Data structures and algorithm, Git, Microservice programming, etc
- Developing a whole project from scratch using Python and Django in group of 5 people
- Adopting top-notch technologies that we were taught during the summer camp

Course Projects

Artificial Intelligence *Spring 2020*

- **Price Estimation using Regression**
  Estimating the price of mobile phones using different regression models like LinearRegression, TreeRegression, and lightgbm
- **Image Classification with Neural Network**
  Applying a multi-layer neural network using Pytorch in conjunction with analyzing and tuning various hyper-parameters
- **Working with SciKit-Learn Library**
  Using different classifiers like decision trees, KNN, and ensemble methods on a dataset of customers to predict whether they will come back to the market
- **Text Processing using Bayesian Networks**
  Processing news with bag of words to classify their categories using Bayesian networks implemented from scratch
- **Decrypting Substitution Ciphers with Genetic Algorithm**
  Implementing a genetic algorithm from scratch to find the key for a particular substitution cipher
- **Search Algorithms**
  Implementing uninformed and informed search methods from scratch to solve a problem and comparing these methods' functionality

Compiler design and programming languages *Fall 2020*

- Implementing compiler for Sophia language in four phases: lexical and syntax analyzer, name analyzer, type analyzer, and code generator using Java

Internet Engineering *Spring 2021*

- Developing web application for Students Portal and Course Registration System
- **Back end** : Java (Spring framework) - **Front end** : JavaScript (Reactjs) - DB: MySQL - Deployment: Docker, Kubernetes

Operating System *Fall 2019*

- Customizing xv6 kernel with some added features for CPU scheduling, memory management, and synchronization
- This course's projects consist of subjects like socket programming, multi-threading, and synchronization

Skills

Programming	Python, C++, Java, C, PHP, JavaScript, SQL
Web Development	Django, Spring, React, HTML, CSS
Machine Learning Python Libraries	Pandas, Scikit-learn, Numpy, NLTK, Pytorch
Database	MySQL, MongoDB, PostgreSQL
Technologies	Git, Docker, Jupyter Notebook, Maven, Kubernetes
Software Engineering	Proficient in object-oriented design patterns, software development methodologies, and software testing
Hardware Design Languages	Verilog, VHDL
Simulation	Modelsim, Vivado, Quartus
Interpersonal skills	Teamworking, Teaching, Self-Learning, Problem-Solving
Operating Systems	Linux (Ubuntu), MacOS, Windows

Volunteer Experience

High School Discrete Mathematics and Physics Teacher *Oct. 2017 - July. 2018*

- Teaching Discrete Mathematics and Physics, solving extra problems in sophisticated subjects.

Languages

Persian : Native
English : Fluent (TOEFL : To be taken on November 13th)