

Sadaf Sadeghian

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EDUCATION

Bachelor of Computer Engineering

GPA: 19.22 / 20 (4 / 4)

University of Tehran, Tehran, Iran

2016-Present

Related Courses : Computer Networks(20/20), Computer Networks Security(20/20), Distributed Systems(20/20), Operating Systems(20/20), Artificial Intelligence(20/20), Database Design(19.2/20), Algorithms Design(19.5/20), Neural Networks(18/20), Linear Algebra (19.1/20)

Diploma of Math and Physics

GPA: 19.98 / 20 (4 / 4)

Salam High School, Tehran, Iran

2012-2016

HONORS AND AWARDS

- **Ranked 2nd** University of Tehran
Among CE class of 2020
- **Honorary Award of FOE** 2016-2017, 2017-2018, 2018-2019
Awarded to the top three students of each engineering field each year.
- **Faculty of Engineering Fellowship Award** 2017-2018, 2018-2019
Received Faculty of Engineering fellowship award as an exceptionally talented student.
- **Ranked in the Top 0.13% (99.87 percentile)** 2016
Among more than 168,000 participants in Iranian nationwide university entrance exam.
- **RoboCup Iran Open** 2015
Ninth place among more than 100 teams in junior rescue league.
Awarded as the super team of rescue robots among more than 30 teams.
- **Iranian Olympiad in Informatics (Computer Science)** 2014, 2012
Accepted in first round of Olympiad as top 25 percent of talented Iranian students.

RESEARCH EXPERIENCES

Research Assistant

Under Supervision of Dr. Behnam Bahrak

Inter-country Study of Similarities and Influences

2019-2020

Country similarities were analyzed based on most read books. The effect of language, religion and geological distance on book similarity and inter-country influences was studied.

Data scientist Intern

PAD Lab, University of Tehran

Machine Learning Application

2019

During this 320 hours internship, the "Hands-on Machine Learning" book was read and interns contributed to Kaggle competitions i.e. the Titanic competition, houses price prediction, and IEEE fraud detection.

TEACHING EXPERIENCES

IEEE Data Science Winter School

University of Tehran IEEE Student Branch

Machine Learning and Python Instructor

2019

Teaching Assistant

University of Tehran

"Operating Systems" Professor M. Kargahi

2019-present

"Database Design" Professor A. Shakery

2019-present

"Artificial Intelligence" Professor H. Fadaei

2019-2020

"Formal Language and Automata" Professor H. Hojat

2019-2020

"Advance Programming" Professor R. Khosravi and Professor A. Sadeghi

2018-2019

"Discrete Mathematics" Professor S. Mohammadi

2018-2019

WORKING EXPERIENCES

Back-End Developer (Intern)

Worked as a developer in a hotel booking start-up.

Lamasoo Company

Summer 2018

Front-End and Back-End Developer

Developed a site for online contests as a member of DMC team.

Summer of Code (University of Tehran)

Summer 2017

PROJECTS

GHS Algorithm for Finding MST

Distributed Systems

Implemented GHS distributed algorithm for finding minimum spanning tree in a weighted graph. (Implemented in Java using Kompics)

MapReduce Algorithm for Counting Words

Distributed Systems

Implemented distributed MapReduce algorithm for counting occurrences of each word in a text. (Implemented in Java using Kompics)

Dynamic Forwarding and Routing in a Network

Computer Network

Implemented Distance Vector routing protocol, which uses Bellman-Ford algorithm, for routing and forwarding message among virtual nodes. Also implemented traceroute command. (Implemented in Python)

TCP over UDP

Computer Network

Implemented some features of TCP New Reno protocol over UDP such as reliable data transfer, congestion control and flow control. Also implemented Nagle algorithm for improving efficiency. (Implemented in Java)

Proxy Server

Computer Network

Implemented a proxy server with logging, caching, injection and accounting features. (Implemented in Python)

Food Ordering Application ("Loghme")

Internet Engineering

Developed web application for online food ordering and delivery.

(Backend: Java(Spring framework) - Frontend: JavaScript(Reactjs) - DB: MySQL - Deployment: Docker, Kubernetes)

Traffic Signs Detection in Real-World Images

Neural Networks

Implemented CNN and fine-tuned it also used drop out, data augmentation and batch normalization for improving the network results. (Implemented in Python using Keras)

Air Pollution Forecasting

Neural Networks

Implemented RNN, LSTM and GRU for series prediction and implemented various methods for handling missing values. (Implemented in Python using Keras)

Image Generation Using GANs

Neural Networks

Implemented Variational Auto-encoder, DCGAN and CGAN for generating plausible images similar to CIFAR10 dataset images. (Implemented in Python using Keras)

Database for a blood center

Database Design

Implemented a database with functions, triggers, views and indexes for a blood center. (Implemented in SQL Server)

CIFAR10 Image Classification

Artificial Intelligence

- Implemented random forest for classification and used methods including: turning images to gray scale, PCA, random projection and augmentation for improving the model.
- Implemented a CNN and fine-tuned layers, learning rate, batch size and activation functions. (Implemented in Python using Scikit-learn and Pytorch)

Spam Detection

Artificial Intelligence

Normalized text, extracted features and implemented a spam detector using Naive Bayesian classifier. (Implemented in Python)

Compiler for SMOOLA Language

Compiler Design and Implementation

Implemented four phases: lexical and syntax analyzer, name analyzer, type analyzer and code generator. (Implemented in JAVA using ANTLR)

Socket Programming

Operating Systems

Implemented server heartbeat, UDP and TCP socket protocols for Battleship game. (Implemented in C)

Multi-process Text Searching System

Operating Systems

Used pipes for communication between processes, which filter specific records in multiple files and sort them by a particular field. (Implemented in C++)

New Features for xv6 kernel*Operating Systems*

Implemented new features for xv6 operating system, including: new system calls, CPU scheduling and memory management. (Implemented in C)

Lane Lines Detection*Systems Analysis*

Applied edge detection algorithms to identify lane lines on the road. (Implemented in Python using OpenCV)

Multi-cycle MIPS*Computer Architecture*

Implemented MIPS multi-cycle processor. (Implemented in verilog)

TECHNICAL SKILLS

Programming Languages: Python, JAVA, C, C++

Database: MySQL, SQLServer

Machine Learning Python Libraries: Numpy, Pandas, Seaborn, Scikit-learn, Keras, Pytorch

Hardware Design Languages: Verilog, SystemVerilog

Web Development: Django, React, JavaScript, HTML, CSS

Simulation: ModelSim, Quartus, Proteus

Tools: Git, \LaTeX , Wireshark, Mininet, Gephi, Postman, Jupyter notebook, Maven

Operating Systems: Linux(Ubuntu), MacOS, Windows

VOLUNTEERING EXPERIENCES

Member of FSEN student branch

FSEN Conference 2019, Tehran

Member of Organizing Team

Machine Learning Summit 2018, Tehran

Membership Chairperson

ACM student branch of University of Tehran, 2017

LANGUAGES

Persian (Native), English (Fluent), German (Familiar), Arabic (Familiar)