Sadaf Sadeghian

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EDUCATION

Master of Science in Computer Science — **University of British Columbia, Vancouver,Canada**
2021-Present

Bachelor of Computer Engineering — **University of Tehran, Tehran, Iran**
GPA: 19.22 / 20 (WES CGPA : 4 / 4) — *2016-2021*
Ranked **Second** among the CE class
Related Courses : Operating Systems(20/20), Distributed Systems(20/20), Computer Networks(20/20), Networks Security(20/20), Artificial Intelligence(20/20), Neural Networks(18/20), Database Design(19.2/20), Linear Algebra(19.1/20)

Diploma of Math and Physics — **Salam High School, Tehran,Iran**
GPA: 19.98 / 20 — *2012-2016*

HONORS AND AWARDS

- **Ranked 2nd Among the Computer Engineering class** — *University of Tehran*
- **Honorary Award of FOE (Faculty of Engineering)** — *2016-2017, 2017-2018, 2018-2019*
  Awarded to the outstanding students (top 3) of each engineering field each year.
- **University of Tehran Hamiyan Scholarship** — *2017-2018, 2018-2019*
  Awarded for high academic achievement.
- **IEEEXtreme 13.0 Contest** — *2019*
  Our team (OnceUponATimeInUT) ranked 2nd in Iran and globally 101st among 2,781 teams.
- **Ranked in the Top 0.13% (99.87 percentile)** — *2016*
  Among more than 168,000 participants in the Iranian nationwide university entrance exam.
- **9th place in RoboCup Iran Open** — *2015*
  Among more than 100 teams in the junior rescue league.
- **Iranian Olympiad in Informatics** — *2014, 2012*
  Acceptance in the first round of Olympiad as the top 25 percent of talented Iranian students.

PUBLICATIONS

Sabri, N., Sadeghian, S. Bahrak, B. **A cross-country study on cultural similarities based on book preferences. Soc. Netw. Anal. Min. 10, 86 (2020).** [link]
Implemented codes for crawling data, visualizations, and analyzing the graphs, and wrote some parts of the paper.

RESEARCH EXPERIENCES

Undergraduate Research Assistant — **University of Tehran**
Under Supervision of Prof. Behnam Bahrak — *2019-2020*
Worked on social networks, graph analytics and machine learning projects in the Data Analytics Laboratory.

Data Scientist Intern — **University of Tehran Science and Technology Park**
PAD Laboratory — *2019*
The "Hands-on Machine Learning" book was read and contributed to Kaggle competitions, such as the Titanic competition, house price prediction, and IEEE fraud detection. Also, passed two Coursera courses on graph analytics and did a project on the Ethereum transaction graph.

TEACHING EXPERIENCES

Machine Learning and Python Instructor — **IEEE Data Science Winter School, University of Tehran**
Taught python and its useful libraries, designed hands-on problems, and helped participants in ML hands-on sessions. — *2019*

Teaching Assistant — ***University of Tehran***
"Operating Systems" Professor M. Kargahi — *2019-2021*
"Database Design" Professor A. Shakery — *2019-2021*

"Artificial Intelligence" Professor H. Fadaei and Professor H. Moradi *2019-2020*
"Data Structures" Professor F. Faghih *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*

PROJECTS

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)

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)

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)

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)

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)

CIFAR10 Image Classification *Artificial Intelligence*

- Implemented random forest for classification and used methods including turning images to grayscale, 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)

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)

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)

Real-Time Robotic Arm (Selected Among the Best Projects of the Course) *Real-Time Embedded Systems*
Built a robotic arm with recording functionality, and a high optimization in storage usage to extend the recording time.

SKILLS

Programming Languages: Python, C++, JAVA, C
Database: MySQL, SQLServer
Machine Learning: Numpy, Pandas, Seaborn, Scikit-learn, Keras, Pytorch
Web Development: Django, React, JavaScript, HTML, CSS
Tools: Git, LaTeX, Wireshark, Maven, Mininet, Gephi, Postman, Jupyer notebook
Operating Systems: Linux(Ubuntu), MacOS, Windows
Hardware Design: Verilog, SystemVerilog, ModelSim

LANGUAGES

Persian (Native), English (Fluent), German (Familiar)
TOEFL iBT Score: 105 [Reading: 30, Listening: 24, Speaking: 23, Writing: 28]

VOLUNTEERING EXPERIENCES

Member of FSEN Student Branch and Organizing Team *FSEN Conference 2019, Tehran*

Member of Organizing Team *Machine Learning Summit 2019, Tehran*

Core Member *ACM student branch of University of Tehran, 2018*

We managed and organized scientific events including seminars, conferences, workshops and contests for students.

WORKING EXPERIENCES

Back-End Developer (Intern) *Lamasoo Company, 2018*

I worked as a developer in a hotel booking startup.

Front-End and Back-End Developer *Summer of Code (University of Tehran), 2017*

We developed a site for online contests held in the university.

INTERESTS

Travelling, Swimming, Playing the Piano, Reading Books, Volunteer Work