Sepehr Babapour

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Education

Iran University of Science and Technology, Tehran, Iran — **Sep 2017** – (Expected) **Jan 2022**
Bachelor of Computer Engineering — (Current) GPA: 19.01/20
Ranked 4th among Iran Universities based on QS Ranking — (Last Year GPA: 19.23/20)
Related Courses:

- Deep Learning (20/20)
- Computer Vision (20/20)
- Natural Language Processing (20/20)
- Computational Intelligence (18.75/20)
- Artificial Intelligence (19.5/20)
- Algorithm Design (19.75/20)
- Data Structure (19.75/20)

Iran Atomic Energy Highschool, Tehran, Iran — **Sep 2013 – Jul 2017**
Diploma of Mathematics and Physics — GPA: 19.13/20
Achievements:

- Semifinalist in Olympiad on Astronomy and Astrophysics
- Semifinalist in Olympiad on Physics

Honors and Awards

Permitted to Apply for M.Sc. Program without Exam — **2020 – 2021**
Iran University of Science and Technology, Tehran, Iran
Eligible for applying to continue my education in the Master's Program at the Department of Computer Engineering without taking the National Entrance Exam for Graduate Schools, as a reward for top students.

Outstanding Undergraduate Student Rank #1 — **2019 – 2020**
Iran University of Science and Technology, Tehran, Iran — GPA: 19.31/20

Outstanding Undergraduate Student Rank #1 — **2018 – 2019**
Iran University of Science and Technology, Tehran, Iran — GPA: 18.76/20

Outstanding Undergraduate Student Rank #1 — **2017 – 2018**
Iran University of Science and Technology, Tehran, Iran — GPA: 18.82/20

Professional Experiences

IPM Institute for Research in Fundamental Sciences, Tehran, Iran — **Jun 2021 – Nov 2021**
Deep Learning Researcher

We proposed a new data-aware compression approach, called DANA, to effectively utilize both sparsity and similarity in inputs and weights. I was in charge of code optimization, testing models such as MobileNet, UNet, CifarNet and working with WIDER FACE, iMaterialist, Fashion MNIST, CIFAR-10 datasets. I was also responsible for results visualization by exploiting packages such as Seaborn and Matplotlib.

Iran University of Science and Technology, Tehran, Iran — **Mar 2021 – Nov 2021**
Computer Vision Researcher

We implemented automatic and semi-automatic face dataset generator in order to build a huge face dataset by which we can train generative models such as Generative Adversarial Networks. During the research process, I've been learning more about pose detection, image quality assessment, face recognition and face clustering.

Tehran Institute for Advanced Studies (TeIAS), Tehran, Iran — **Jul 2020 – Mar 2021**
Natural Language Processing Researcher

I was an active member of undergraduate reading group on Natural Language Processing subject which was held by Dr.Pilehvar. In these sessions we covered a wide range of tasks in the field of Natural Language

Processing from Text Classification to Named Entity Recognition and Image Captioning and we got familiar with wide range concepts from Word Embeddings to Text Debiasing, Seq2Seq Models, Attention, Transformers, BERT and mBERT model. Due to the nature of the offered sessions, I was obligated to read a fair amount of papers which eventually led to learning how to read and skim papers for educational purposes.

IPM Institute for Research in Fundamental Sciences, Tehran, Iran **Aug 2020 – Feb 2021**

Computer Vision Researcher

During this period, I built and developed a project called Fashion Mirror under supervision of Dr.Falahati. Fashion Mirror is a tool to assist potential buyers in the process of online shopping. The user can select any clothes and visualize how it looks on them using Fashion Mirror simply by uploading a picture of themselves. In this project, I used the Detectron 2 model and achieved the intended goal by combining the features provided by Detectron 2 with traditional Computer Vision techniques such as erode and dilate.

IPM Institute for Research in Fundamental Sciences, Tehran, Iran **Jul 2019 – Sep 2019**

Backend Developer Intern

We implemented a web server to automate Robo-DIMM, a telescope to monitor the night sky and weather of the Iranian National Observatory site. We worked in teams of two, and learned socket programming, design patterns, and how to cooperate as a team. I was also responsible for converting the interface written in C# to Python.

Related Projects

Persian Automatic Speech Recognition with Transformer **Jul 2021**

Final Project of Deep Learning Course

For this project, initially, we gathered Automatic Speech Recognition (ASR) data from international Persian movies with Persian subtitles consisting of 4842 pairs of Sentences and Voices. Afterward, we implemented a series of speech-to-text models from a simple RNN model to more complicated ones using transformer blocks to increase its performance.

Multi-Attribute Recipe Dataset **Jul 2021**

Final Project of Natural Language Processing Course

To start with this project, we developed a web scrapper to gather cooking recipes and related information from a cooking website. Moreover, we performed NLP tasks such as Word2Vec, Tokenization, and Parsing on the recipes. Afterward, we developed our own Language Model based on this dataset. In the end, we used this language model to build our generative model capable of generating custom recipes with the given information.

Distorted Car Number Plate Detection **Feb 2021**

Final Project of Computer Vision Course

Throughout this project, we used both traditional computer vision methods (Canny, Adaptive Threshold, Open, Close) and deep learning models (Modified InceptionResNetV2 models) in order to classify three types of images: full decent car number plates, distorted car number plates, and images with no car number plates in them.

Teaching Experiences

Teacher Assistant

- Deep Learning, Iran University of Science and Technology, (Fall – Winter 2021), Dr.Mohammadi.
- Artificial Intelligence, Iran University of Science and Technology, (Winter – Spring 2021), Dr.Etemadi - Dr.Pilehvar.
- Fundamentals of Programming, Iran University of Science and Technology, (Fall – Winter 2019), Dr.Etemadi.
- Logical Circuits, Iran University of Science and Technology, (Fall – Winter 2019), Dr.Falahati (Head of 5 TAs).

Mentor

- Algorithm Design, Iran University of Science and Technology, (Winter – Spring 2021), Dr.Etemadi.
- Data Structure, Iran University of Science and Technology, (Fall – Winter 2020), Dr.Etemadi.

Online Certificates

Neural Networks and Deep Learning **Aug 2020**
Coursera MOOC by deeplearing.ai, [Certificate]

Using Python to Access Web Data **Jul 2020**
Coursera MOOC by University of Michigan, [Certificate]

AI For Everyone **Jul 2020**
Coursera MOOC by deeplearing.ai, [Certificate]

Python Data Structures **Jul 2020**
Coursera MOOC by University of Michigan, [Certificate]

Programming for Everybody (Getting Started with Python) **Jul 2020**
Coursera MOOC by University of Michigan, [Certificate]

Data Structures **Jul 2020**
Coursera MOOC by University of California San Diego, [Certificate]

Advanced Algorithms and Complexity **Jun 2020**
Coursera MOOC by University of California San Diego, [Certificate]

Algorithms on Strings **May 2020**
Coursera MOOC by University of California San Diego, [Certificate]

Algorithms on Graphs **May 2020**
Coursera MOOC by University of California San Diego, [Certificate]

Algorithmic Toolbox **May 2020**
Coursera MOOC by University of California San Diego, [Certificate]

Skills

Natural Languages

- Persian (Bilingual Proficiency)
- English (Professional Working Proficiency)
- French (No Proficiency)

Programming Languages

- C
- C++
- C#
- Python
- LaTeX

Machine Learning/Data Visualisation

- Keras
- TensorFlow
- OpenCV
- NLTK
- Seaborn
- Matplotlib
- Pandas
- Scikit-Learn
- Numpy
- Scipy

Additional Activities

Sports

- Chess
- Tennis
- Table Tennis

Entertainments

- Movies and TV Series
- Reading
- Stock Trading

Interests

- Physics and Astronomy
- Economy
- Technology