

ARYA AFTAB

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EDUCATION

Sharif University of Technology 

Sep. 2018 – Jul. 2021


Master of Science, Department of Electrical Engineering (Communication Systems)

Tehran, Iran

Thesis: “Speech Emotion Recognition with Deep Learning and Frequency Features”

Supervisor: Prof. Shahrokh Ghaemmaghami

GPA : 3.6(16.48/20)

Amirkabir University of Technology (Tehran Polytechnic) 

Sep. 2013 – Aug. 2018

Bachelor of Science, Department of Biomedical Engineering (Bioelectric)

Tehran, Iran

Thesis: “Investigating Effect of Drop-out Regularizer on Deep Neural Network”

Supervisor: Dr. Seyyed Ali Seyyedsalehi

RESEARCH INTERESTS

- Deep Learning
- Machine Learning
- Speech Processing
- Artificial Intelligence

RELEVANT COURSEWORK

- Deep Learning
- Information Hiding
- Speech Processing
- Random Processes
- Advanced Communication
- Source Localization
- Radar Systems
- Artificial Intelligence
- Chaos Theory
- Optimization
- Linear Algebra

HONORS

- Ranked 9st in Iran’s national Master of Science in electrical engineering university entrance exam among more than 35,000 participants [Spring 2018].
- Ranked top 0.5% in Iran’s national undergraduate university entrance exam among more than 300,000 participants [Summer 2013].
- Acceptance in the first stage of Iran’s nation-wide astronomy Olympiad (among top 2000 of 100,000 participants) [Winter 2011].

PROJECTS

Different Models for Word Spotting (Private Repository) | Python, TensorFlow, PyTorch **Present**

- In this project, for an industrial project at Electronic Research Institute (ERI), we examine several different models in terms of efficiency, accuracy, ability to implementation, and so on.

Multi-Head ReLU for Implicit Neural Representation  | Python, TensorFlow

Sep. 2021

- In this project, a novel multi-head multi-layer perceptron (MLP) structure is presented for implicit neural representation (INR).

Speech Emotion Recognition (My Master’s Thesis)  | Python, TensorFlow, Linux

Jul. 2021

- In this project, we propose an efficient and lightweight fully convolutional neural network(FCNN) for speech emotion recognition in systems with limited hardware resources.

Drop-Connect in TensorFlow  | Python, TensorFlow

Jul. 2021

- In this project, we implemented drop-connect in form of a Python library.

SincNet in TensorFlow  | Python, TensorFlow

Jun. 2021

- In this project, we implemented SincNet in form of a Python library.

Rotary Embeddings in TensorFlow  | Python, TensorFlow May. 2021


- In this project, a standalone library for adding rotary embeddings to transformers in TensorFlow was implemented.

Sparse Layer in TensorFlow  | Python, TensorFlow Apr. 2021

- In this project, we implemented two layers (Convolution and Dense) as sparse layers in form of a Python library.

Physics-Based Neural Network  | Python, TensorFlow, FEniCS Feb. 2021

- In this project, we used the sine activation function, which has recently been introduced as a solution for solving differential equations with neural networks.



Two Steps Gradient Vector Flow (GVF) Snake Model  | MATLAB Dec. 2020

- In this project, we utilized the generalized gradient vector flow snake model using minimal surface and two steps converging using both vector based normalization and component-based normalization with distinct controlling parameters on active contour.

Stock Prediction (Private Repository) | Python, TensorFlow, Web Crawling Sep. 2020

- In this project, we first extracted financial market data via web crawling and then modelled them for risk reduction and profit forecasting.

PEER-REVIEWED MANUSCRIPTS

- **Arya Aftab**, Alireza Morsali, Shahrokh Ghaemmaghami, Benoit Champagne. “**Light-SERNet: A Lightweight Fully Convolutional Neural Network for Speech Emotion Recognition**”. Accepted in ICASSP 2022. Arxiv 
- **Arya Aftab**, Alireza Morsali. “**Multi-Head ReLU Implicit Neural Representation Networks**”. Accepted in ICASSP 2022. Arxiv 
- **Arya Aftab***, Fatemeh Kashani Asadi Jafari*, Alireza Morsali, Shahrokh Ghaemmaghami. “**An End to End Method for Predicting pK_a of Small Molecules**”. Under preparation.

*: Indicating same contribution

TEACHING ASSISTANT EXPERIENCES

Speech Processing Fall 2020

- For PhD and Master of communication systems students at Sharif University of Technology. Instructor: **Prof. Shahrokh Ghaemmaghami**.

Fundamental of Electrical Engineering Winter 2020

- For Bachelor of electrical engineering students at Sharif University of Technology. Instructor: **Dr. Leila Mahmodi**.

WORK EXPERIENCES

Electronic Research Institute (ERI) at Sharif University of Technology  Sep. 2021 – Present
Researcher *Tehran, Iran*

- I am working as a researcher and developer to develop systems based on machine learning and speech processing.

DG Sculptor  Jan. 2021 – Present
Researcher *Montreal, Canada*

- My colleagues and I at this startup are trying to develop new methods for neural rendering.

Arya Teb Firouz  Mar. 2019 – Aug. 2019
Researcher *Tehran, Iran*

- I worked as a researcher in the research and development (R&D) department of the company to solve problems with artificial intelligence.

INTERNSHIP

Emam Sajjad Hospital 

Biomedical Intern






Jun. 2017 – Aug. 2017

Yasuj, Iran


- I classified documents related to medical devices in the hospital based on their performance.

TECHNICAL SKILLS


Languages:

-  **Python**(TensorFlow, PyTorch, Keras, JAX)(Expert)
-  **JavaScript**(Intermediate)
-  **MATLAB**(Expert)
-  **BashScript**(Intermediate)
-  **C++**(Intermediate)

Developer Tools:

-  **VS Code**(Expert)
-  **Sublime Text**(Intermediate)
-  **Jupyter Notebook**(Expert)
-  **Vim**(Intermediate)
-  **PyCharm**(Intermediate)

Technologies/Frameworks:

-  **Linux**(Expert)
-  **NodeJS**(Intermediate)
-  **GitHub**(Expert)
-  **Docker**(Intermediate)
-  **Git**(Expert)

General Softwares:

-  **LaTeX**(Intermediate)
-  **MeshLab**(Intermediate)
-  **GIMP**(Intermediate)
-  **Mendeley**(Intermediate)
-  **Inkscape**(Intermediate)
-  **Microsoft Office**(Intermediate)

INTERESTS

- Listening to Music
- Playing Computer Games
- Walking
- Climbing
- Reading Manga Comics

REFERENCES

- **Dr. Shahrokh Ghaemmaghami:** Professor
Department of Electrical Engineering and Electronics Research Institute, Sharif University of Technology, Tehran, Iran.
Email: ghaemmag@sharif.edu
- **Dr. Sajjad Amini:** Assistant Professor
Department of Electrical Engineering and Electronics Research Institute, Sharif University of Technology, Tehran, Iran.
Email: s.amini@sharif.edu
- **Dr. Alireza Morsali**
Department of Electrical and Computer Engineering, McGill University, Montreal, Canada.
Email: alireza.morsali@mail.mcgill.ca