

Haleh Damirchi

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Education

Amirkabir University of Technology

M.Sc. Electrical Engineering, GPA: 17.83/20

Tehran, Iran

2017–2020

Thesis: Single-channel Speaker Extraction based on Deep Learning

Tabriz University

B.Sc. Electrical Engineering, GPA: 16.04/20

Tabriz, Iran

2012–2016

Research Interests

Deep learning, Signal processing, Image and Speech processing, Reinforcement learning,
Machine learning applications in healthcare, Medical signal processing, Neuroscience

Publications

- [1] **H. Damirchi**, S. Seyedin, S. M. Ahadi, “Speaker Extraction using Stacked BLSTM Optimized with Frequency-domain Differentiated Spectrum Loss,” in *International Conference on Electrical Engineering (ICEE). IEEE, 2020*. (to appear)
- [2] **H. Damirchi**, S. Seyedin, S. M. Ahadi, “Improving the Loss Function Efficiency for Speaker Extraction Using Psychoacoustic Effects,” Submitted to *Applied Acoustics, 2020*.

Work Experience

Machine Learning Teaching Assistant

Amirkabir University of Technology

Fall 2019 – Present

Graduate/Undergraduate

Logic Circuits Teaching Assistant

Amirkabir University of Technology

Spring 2019, Spring 2020

Undergraduate

Research Assistant at Signal and Speech Processing Research Lab

Amirkabir University of Technology

2019 – Present

R&D Intern

Aria Kavosh Industrial Corp.

July 2016 – Feb 2017

Tech Blogger

Graph Team - ZAMANA blog

Aug 2015 – June 2016

R&D Intern

Tabriz Peguh

Summer 2014

Honors

- **Second Best** teaching assistant in the electrical engineering faculty of Amirkabir University of Technology by students' evaluations.
- Ranked among **top 1%** in the nationwide university entrance exam in Mathematics and Physics field for B.Sc. degree, 2012.
- Ranked among **top 1%** in the nationwide university entrance exam in Electrical Engineering field for M.Sc. degree, 2017.

Extra Courses and Certificates

Fundamentals of Reinforcement Learning <i>Coursera</i>	July 2020
Fundamentals of Neuroscience (part one) <i>edX</i>	April 2020
Deep Learning Specialization <i>Coursera</i>	March 2018
Certificate of Robotic Training and Participation <i>Robotic Competition, University of Tabriz</i>	January 2013

Projects

Speaker Extraction | *Tensorflow, Pytorch, Matlab*

- Worked on deep neural networks (DNN, LSTM, CNN) for speaker extraction.
- Researched for and implemented different loss functions for DNN and LSTM models.

Speech Recognition | *Matlab*

- Used Hidden Markov Models (HMM) and Dynamic Time Warping (DTW) to recognize an utterance.

Speech Enhancement | *Matlab, Python*

- Enhanced the input noisy speech using MMSE and Spectral Subtraction algorithm
- Used Decision Directed algorithm to estimate the prior SNR.

Voice Activity Detection | *Matlab, Python*

- Used Ramirez04 Algorithm to detect the activity of speech signals.

Packet Transmission in Wireless Sensor Networks | *Python*

- Optimized Packet Sending using ACO (Ant Colony Optimization) algorithm.

Backpropagation using Evolutionary Algorithms | *Python*

- Implemented backpropagation in a deep neural network using GWO (Gray Wolf Optimization), and PSO (Particle Swarm Optimizaton).

Path Planning through Obstacles | *Python*

- Implemented genetic algorithm to optimize path planning through obstacles.

Flight Trend Prediction | *Python, Tensorflow*

- Predicted number of flights based on trends and data given by Alibaba company (Amirkabir University Data Analysis Competetion).

Car Price Prediction | *Python*

- Extracted car data from Bama car dealership website using BeautifulSoup python library.
- Predicted the price of cars using machine learning algorithms from sklearn python library.

Technical Skills

C, Python, Tensorflow, Keras, Pytorch, Matlab, Latex, MySQL
AVR, PCB Design, PLC Ladder

Languages

- Azeri, Persian: Native
- English: Fluent, TOEFL iBT: 114 (Reading: 30, Listening: 30, Speaking: 27, Writing: 27)

volunteer work

Organizing committee member in 4th International Conference on Signal Processing and Intelligent Systems (ICSPIS), December 2018 at Amirkabir University of Technology, Tehran, Iran.