

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

Advisors: Professor Sanaz Seyedin, Professor Seyed Mohammad Ahadi

University of Tabriz

B.Sc. Electrical Engineering, GPA: 16.07/20

Tabriz, Iran

2012–2016

Research Interests

Machine learning, Signal processing, Audio and Image signal processing

Machine listening, Machine vision, Machine learning applications in healthcare

Publications

- [1] **H. Damirchi**, S. Seyedin and S. M. Ahadi, “Speaker Extraction Using Stacked BLSTM Optimized with Frequency-domain Differentiated Spectrum Loss,” 2020 28th Iranian Conference on Electrical Engineering (ICEE), Tabriz, Iran, 2020, pp. 1-5, doi: 10.1109/ICEE50131.2020.9260739.

Under Review

- [1] **H. Damirchi**, S. Seyedin, S. M. Ahadi, “Improving the Loss Function Efficiency for Speaker Extraction Using Psychoacoustic Effects”, Submitted to *Applied Acoustics*, 2020.

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

Coursera

July 2020

Fundamentals of Neuroscience (part one)

edX

April 2020

Deep Learning Specialization

Coursera

March 2018

Certificate of Robotic Training and Participation

Robotic Competition, University of Tabriz

January 2013

Work Experience

Machine Learning Teaching Assistant <i>Amirkabir University of Technology</i>	Fall 2019 – Present <i>Graduate/Undergraduate</i>
Logic Circuits Teaching Assistant <i>Amirkabir University of Technology</i>	Spring 2019, Spring 2020 <i>Undergraduate</i>
Research Assistant at Signal and Speech Processing Research Lab <i>Amirkabir University of Technology</i>	2018 – Present
R&D Intern <i>Aria Kavosh Industrial Corp.</i>	July 2016 – Feb 2017
Blogger <i>Graph Team - ZAMANA blog</i>	Aug 2015 – June 2016
R&D Intern <i>Tabriz Peguh</i>	Summer 2014

Academic 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*

- Enhanced the input noisy speech signal using MMSE and Spectral Subtraction algorithm.

Voice Activity Detection | *Matlab*

- 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 Competition).

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