Haleh Damirchi

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Academic Qualifications

- **Amirkabir University of Technology** — **Tehran, Iran**
  M.Sc. Electrical Engineering , GPA: 17.83/20 — *2017–2020*
  Thesis: Single-channel Speaker Extraction based on Deep Learning
- **University of Tabriz** — **Tabriz, Iran**
  B.Sc. Electrical Engineering, GPA: 16.07/20 — *2012–2016*

Research Interests

- Speech Processing
- Medical Signal Processing
- Machine Learning
- Neuroscience

Publications

- H. Damirchi, S. Seyedin, S. M. Ahadi, "Speaker Extraction Using Stacked BLSTM Optimized with Frequency-domain Differentiated Spectrum Loss," in *Internationl Conference on Electrical Engineering (ICEE)*, 2020.
- H. Damirchi, S. Seyedin, S. M. Ahadi, "Improving the Loss Function Efficiency for Speaker Extraction Using Psychoacoustic Effects," submitted to *Signal Processing*, 2020.

Teaching Experience

- **Machine Learning TA**
  Amirkabir University of Technology, Graduate/Undergraduate — *Fall 2019, Spring 2020*
  - Held workshops to teach students to code in python and use frameworks such as tensorflow.
- **Logic Circuits TA**
  Amirkabir University of Technology, Undergraduate — *Spring 2019, Spring 2020*
  - Second best teaching assistant in the electrical engineering faculty by students' evaluations.
  - Held online classes during Spring 2020 semester.

Extra Courses and Certificates

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

Projects

- **Speaker Extraction using Deep Learning**
  - Worked on deep learning models to better extract a speech of interest (DNN, LSTM, CNN) from a mixture of speakers using Tensorflow and Pytorch.
  - Researched for and implemented different loss functions for DNN and LSTM models.
- **Speech Recognition**
  - Used Hidden Markov Models (HMM) and Dynamic Time Warping (DTW) to recognize an utterance.
- **Speech Enhancement of noisy signals**
  - Enhanced the input noisy speech using MMSE and Spectral Subtraction algorithm with Matlab.
  - Used Decision Directed algorithm to estimate the prior SNR.
- **Voice activity detection**
  - Used Ramirez04 Algorithm to detect the activity of speech signals.
- **Packet transmission in wireless sensor networks using swarm intelligence algorithms**
  - Optimized packet sending using GWO (Gray Wolf Optimization), ACO (Ant Colony Optimization) and PSO (Particle Swarm Optimizaton) algorithms with python.
- **Path Planning Algorithm**
  - Implemented genetic algorithm to optimize path planning through obstacles.
- **Prediction of number of flights between cities**
  - Predicted number of flights based on trends and data given by Alibaba company (Amirkabir University Data Analysis Competetion).
- **Car Price Prediction**
  - Extracted car makes and models and other preferred data from Bama car dealership website using BeautifulSoup python library.
  - Predicted the price of cars using machine learning algorithms from sklearn python library.

Skills

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

Work Experience

- **Aria Kavosh Industrial Corp.** — **Tabriz, Iran**
  Intern — *July 2016 – Dec 2017*
  - Worked with PLC and DELTA HMI.
  - Crafted educational units for power engineering labs in universities.
- **Graph Team - ZAMANA blog** — **Tabriz,Iran**
  Tech Blogger — *Aug 2015 – June 2016*
  - Translated up to date topics to persian and wrote and edited tech related topics for the blog.
  - Wrote topics to attract female readers to technology and engineering.
- **Tabriz Peguh** — **Tabriz,Iran**
  Intern — *Summer 2014*
  - Researched in fluid mechanics field for the projects.

Languages

Azeri: Native
Persian: Native
English: 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.

References

- Prof. Sanaz Seyedin
  sseyedin@aut.ac.ir
- Prof. Seyed Mohammad Ahadi
  sma@aut.ac.ir