Masood Delfarah
Ph.D. Candidate

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EDUCATION	**Department of Computer Science and Eng., The Ohio State University**

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Ph.D. candidate in Computer Engineering	Fall 2013 − Present
M.Sc. in Computer Engineering	Fall 2013 − Spring 2018

Supervisor: Professor DeLiang Wang

School of Electrical and Computer Engineering, The University of Tehran

B.Sc. in Computer Engineering	Fall 2008 − Spring 2013

GPA: 16.57/20.00 (top 10%).

RESEARCH INTERESTS

Monaural Speech Enhancement	Automatic Speech Recognition
Speech Dereverberation	Deep Learning
Microphone Array Speech Processing	Statistical Machine Learning

COMPUTER SKILLS

C/C++, **MATLAB**, **Python**, Java, and Unix shell script
Machine learning toolboxes: **Tensorflow**, Caffe, HTK, PyTorch, and MXNet
Other skills: Git and LaTeX

RESEARCH EXPERIENCE

Graduate Research:

- Feature study for two-talker speech separation in reverberant conditions:
  - Utilized parallel computation and GPUs on the Ohio Supercomputing Center for large-scale DNN training for speech separation in anechoic and reverberant conditions.
  - Studied a wide range of acoustic-phonetic features for speech separation and designed novel and optimal feature combinations based on feature selection methods.
- DNN-based two-talker separation algorithm:
  - Utilized sophisticated feature sets to design and implement algorithm
  - Matched performance of hearing implared listeners with normal hearing
- Designed a two-stage RNN algorithm to do joint dereverberation and speech denoising
- Investigated two-talker speaker identification in reverberant mixtures
- Investigated microphone array methods for dereverberation of simulated and recorded reverberant speech.
- Collaborated with lab members to implement open-set speaker separation methods, deep clustering, deep attractor network, and permutation invariant training:
  - Utilized distributed computation over a grid of nodes and GPU servers to perform data parallelism in Tensorflow.
  - Evaluated performance of the algorithms for speech separation in reverberant conditions.

- Pitch-tracking and speech segmentation based on techniques in Computational auditory Scene analysis using Java

- Augmentation of object-detection and visual question answering

- Studying transfer learning in deep Q-learning algorithm (ongoing project)

Undergraduate research:
- **(B.Sc. Thesis)** Designed and implemented a learning style classifier for toddlers, based on cognitive traits of children Information Processing Theories on the ELCK-12 dataset.

- Proposed a knowledge-base for disaster management

- Analyzed Persian Blogosphere to Obtain Social Network of Iranian Politicians and visualizing and graph clustering using *Gephi.*

PROFESSIONAL EXPERIENCE

Reviewer:
- IEEE/ACM Transactions on Audio, Speech, and Language Processing

- Speech Communication

Graduate Teaching Assistant, The Ohio State University:
- Modeling and Problem Solving with Spreadsheets and Databases   Spring 2017
- Modeling and Problem Solving with Spreadsheets and Databases   Spring 2014
- Foundations I: Discrete Structures   Fall 2013

Undergraduate Teaching Assistant, The University of Tehran:
- Design and Analysis of Algorithms   Spring 2012
- Discrete Mathematics Course   Spring 2012
- Artificial intelligence   Fall 2011

PUBLICATIONS AND PRESENTATIONS

Journal papers:
- Eric W. Healy, **Masood Delfarah**, Jordan L. Vasko, Brittney L. Carter, and DeLiang Wang, "An algorithm to increase intelligibility for hearing-impaired listeners in the presence of a competing talker" *The Journal of the Acoustical Society of America*, vol. 141, pp. 4230−4239, 2017.

- **Masood Delfarah** and DeLiang Wang, "Features for masking-based monaural speech separation in reverberant conditions" *IEEE/ACM Transactions on Audio, Speech, and Language Processing*, vol. 25, pp. 1085−1094, 2017.

- Maryam S. Mirian, **Masood Delfarah**, and Behzad Moshiri, "Proposing a Unified Knowledge and Experience-based System using Information Fusion Approach to Facilitate the Disaster Management Process" *Disaster Management Knowledge Quarterly* (in Persian), vol. 2, pp. 215−227, 2012.

Conference papers:
- **Masood Delfarah** and DeLiang Wang, "A feature study for masking-based reverberant speech separation" *Proceedings of INTERSPEECH-16*, pp. 555−559, 2016.

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Selected poster presentations:

- Eric W. Healy, **Masood Delfarah**, Jordan L. Vasko, and Brittney L. Carter, and DeLiang Wang, "Can a trained deep neural network be implemented into hearing technology?" *Acoustics '17 Boston*, 2017.

- Eric W. Healy, **Masood Delfarah**, Jordan L. Vasko, Brittney L. Carter, and DeLiang Wang, "An algorithm to increase intelligibility for hearing-impaired listeners in the presence of a competing talker" *Acoustics '17 Boston*, 2017.