# Masood Delfarah

**Ph.D. Candidate**

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## RESEARCH INTERESTS

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

## EDUCATION

**Department of Computer Science and Eng., The Ohio State University**
**Ph.D. in Computer Eng.** Fall 2013 – Present
**Supervisor:** Prof. DeLiang Wang

**School of Electrical and Computer Engineering, The University of Tehran**
**B.Sc. in Computer Eng.** Fall 2008 – Spring 2013
**GPA:** 16.57/20.00 (top 10%).

## 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*, pp. 555−559, 2016.

*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.

## RESEARCH EXPERIENCE

*Graduate Research:*

- Used MATLAB to do DNN-based speech separation
  - Studied a wide range of acoustic features for speech separation and designed feature combinations based on feature selection methods.
  - Used PBS jobs on Ohio Supercomputing center with GPUs to train DNNs and RNNs for speech separation

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  - Designed and deployed anechoic two-talker speech separation experiments for hearing impaired and normal hearing listeners
  - Studied and implemented microphone array methods for dereverberation and separation under tensorflow framework
  - Designed a two-stage RNN algorithm to do speech dereverberation and denoising
- Managed to implement speaker-independent two-talker separation within a team using tensorflow deep clustering, deep attractor networks and permutation invariant training.
  - Did some experiments using BLSTMs and reverberant speech
- Did augmentation of object-detection and visual question answering systems in a team of 3. (ongoing project)
- Did two-talker speaker identification on reverberant speech
- Used Java to implement pitch-tracking and speech segmentation based on Computational auditory Scene analysis

*Undergraduate research:*

- **(BsC thesis)** Designing and implementing a learning style classifier for toddlers, based on cognitive traits of childrenand Information Processing Theories on the ELCK-12 dataset.
- Proposing 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

## COMPUTER SKILLS

**Proficient in C/C++**, and experienced in MATLAB, Python, Java, and Bash script
Machine learning toolboxes: **Tensorflow**, Caffe, HTK, pyTorch, and MXNet
Other skills: Git, and LaTeX