

Masood Delfarah

Perception and Neurodynamics Lab
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RESEARCH INTERESTS

Speech Separation
Deep Learning
Statistical Machine Learning

Speech Dereverberation
Robust Speaker Recognition

EDUCATION

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

School of Electrical and Computer Engineering, University of Tehran, Iran
B.Sc. in Computer Eng. (Major: Software Eng.) Sep. 2008 – Aug. 2013
GPA: 16.57/20.00 (top 10%).

PUBLICATIONS *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.” *Journal of the Acoustical Society of America*, Accepted on 14 May 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*, vol. 2, pp 215-227, 2012.

Conference papers:

- 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.
- **Masood Delfarah** and DeLiang Wang, “A feature study for masking-based reverberant speech separation.” *Proceedings of INTERSPEECH-17*, pp. 555-559, 2016.

SELECT RESEARCH PROJECTS

Graduate Research Associate:

Summer 2014- Current.

- Two-talker speech separation in reverberant conditions.
Speech separation in reverberant conditions has yet to be explored. We utilize *Twinsorflow* two LSTMs jointly to do separation and then dereverberation. Our evaluations show that this two-stage system gains significant improvement

based on objective intelligibility scores. Our metrics include STOI, PESQ, and fwSegSNR.

- Feature study for reverberant separation.
We study a wide range of features for reverberant speech separation. We find that some features are particularly good for reverberation. We also find feature combinations for reverberant conditions that outperform previously designed ones from other methods.
- Anechoic two-talker separation.
We design a speech separation algorithm based on DNNs and test it on hearing impaired listeners. We find that hearing impaired listeners get substantial benefit from the processed speech. Their intelligibility can match normal hearing listeners.

Undergraduate research assistant:

Fall 2011- Spring 2013.

Supervisors: Dr. Maryam S. Mirian, Dr. Masoud Asadpour.

- **BsC thesis:** Designing and implementing a learning style classifier for toddlers, based on cognitive traits of children and Information Processing Theories. We used decision trees to predict children success based on first year performance using ECLS-K dataset from U.S. department of Education.
- Proposing a knowledge-base for disaster management Supervisor: summarize the abstract and add to here.
- Analyzed Persian Blogosphere to Obtain Social Network of Iranian Politicians. Frequency in which politicians names co-occur in the social network found to have relationship with how close those two are. We obtained network of politicians with graph clustering using *Gephi*.

HONORS

- Granted acceleration in the PhD qualification exam at Computer Science and Engineering department at The Ohio State University Summer 2014
- Scholarship from OSU
- Titled exceptional talented student at the university of Tehran in 2nd, 5th, and 8th semester in BSc. 2008-2013
- Ranked 729 among 400,000+ applicants in the nationwide University Entrance Exam for Undergraduate students. Summer 2008.

SELECT TEACHING EXPERIENCE

- Held Lab sessions and Graded Homework, and exams for 160 students, CSE 2111: Modeling and Problem Solving with Spreadsheets and Databases, osu/cse Spring 2014
- Graded Homework, CSE 2321: Foundations I: Discrete Structures, osu/cse Fall 2013
- designed and grade homework for Design and Analysis of Algorithms, UT, ECE, Spring 2012
- Graded homework for Discrete Mathematics Course, UT, ECE, Spring 2012
- Head TA and homework organizer, held Prolog tutorial sessions, and designed programming assignments, UT, ECE, Fall 2011.

**COMPUTER
SKILLS**

Proficient in C/C++

Experienced in MATLAB, Python, and Java

Familiar with C#, PHP, JavaScript, HTML, and SQL

Other skills: Bash, git, and L^AT_EX