

Seyedmahdad (Matt) Mirsamadi

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RESEARCH INTERESTS

Audio, speech and language processing
Machine learning and artificial intelligence
Deep learning
Deep neural networks in speech recognition
Distant (far-field) speech recognition
Noise and reverberation robustness in ASR
Microphone array signal processing
Speech enhancement

EXPERIENCE

Microsoft Research (May–Aug 2016)

Research Intern – Multimedia, Interaction, and eXperiences (MIX) group

Worked on automatic emotion recognition from speech.

<https://www.microsoft.com/en-us/research/video/automatic-speech-emotion-recognition-using-recurrent-neural-networks-local-attention/>

Microsoft Research (Jun–Aug 2015)

Research Intern – Audio and Acoustics group

Worked on deep learning approaches for real-time low-latency speech enhancement.

<https://www.microsoft.com/en-us/research/video/dnn-based-online-speech-enhancement-using-multitask-learning-and-suppression-rule-estimation/>

HONORS

Best selected paper award in robust ASR, IEEE Spoken Language Technology (SLT) Workshop, 2014.

PUBLICATIONS Conference Papers

- **Seyedmahdad Mirsamadi** and John H.L. Hansen, “On multi-domain training and adaptation of end-to-end RNN acoustic models for distant speech recognition”, in *Interspeech 2017*.
- **Seyedmahdad Mirsamadi**, Emad Barsoum and Cha Zhang, “Automatic speech emotion recognition using recurrent neural networks with local attention”, in *ICASSP 2017*.
- **Seyedmahdad Mirsamadi** and Ivan Tashev, “Causal speech enhancement combining data-driven learning and suppression rule estimation”, in *Interspeech 2016*.
- **Seyedmahdad Mirsamadi** and John H.L. Hansen, “A study on deep neural network acoustic model adaptation for robust far-field speech recognition”, in *Interspeech 2015*.
- **Seyedmahdad Mirsamadi** and John H.L. Hansen, “Multichannel feature enhancement in distributed microphone arrays for robust distant speech recognition in smart rooms” in *IEEE Spoken Language Technology (SLT) Workshop*, 2014.
- **Seyedmahdad Mirsamadi** and John H.L. Hansen, “Multichannel speech dereverberation based on convolutive nonnegative tensor factorization for ASR applications” in *Interspeech 2014*.

Journal Articles

- **Syedmahdad Mirsamadi** and John H.L. Hansen, “Multi-domain adversarial training of neural network acoustic models for distant speech recognition” in *Speech Communication*, Nov 2018.
- **Syedmahdad Mirsamadi** and John H.L. Hansen, “A Generalized Nonnegative Tensor Factorization Approach for Distant Speech Recognition with Distributed Microphones” in *IEEE/ACM Transactions on Audio, Speech, and Language Processing*, June 2016.
- **Syedmahdad Mirsamadi**, Shabnam Ghaffarzadegan, Hamid Sheikhzadeh, Seyed Mohammad Ahadi, Amir Hossein Rezaie, “Efficient Frequency Domain Implementation of Noncausal Multichannel Blind Deconvolution for Convolutional Mixtures of Speech” in *IEEE Transactions on Audio, Speech and Language Processing*, Vol. 20, Issue 8, Oct. 2012.

TECHNICAL SKILLS & EXPERIENCES

- Experience with deep neural network training and testing using common deep learning frameworks (**Theano**, **TensorFlow**)
- Developed a stand-alone Theano-based toolkit for **RNN acoustic modeling for end-to-end speech recognition**
- Experience with building large vocabulary continuous speech recognition (LVCSR) systems using common ASR toolkits (**Kaldi**, **HTK**)
- Experience with large-scale LVCSR tasks (e.g., DNN-based acoustic modelling for LDC Fisher corpus)
- Developed a Python/Numpy based ASR front-end module
- Developed multichannel processing algorithms for robust distant speech recognition
- Experience with speech data collection using microphone arrays for distant ASR
- Experience with Linux Bash Scripting.

PROGRAMMING

- **Programming Languages:** Python, C++
- **Numeric Computation:** Matlab/Octave, NumPy/SciPy

EDUCATION

Ph.D. (2013 – 2017)
Electrical Engineering
The University of Texas at Dallas, Texas, U.S.
Focus: Distant Speech Recognition

M.S. (2009 – 2011)
Electrical Engineering
Amirkabir University of Technology (Tehran Polytechnic), Tehran, Iran
Focus: Blind Speech Separation (BSS), Sound Localization

B.S. (2005 – 2009)
Electrical Engineering
Amirkabir University of Technology (Tehran Polytechnic), Tehran, Iran

**SELECTED
COURSES**

Speech and Speaker Recognition
Machine Learning
Random Processes
Statistical Detection and Estimation Theory
Neural Networks
Digital Signal Processing
Algorithms and data structures
Hardware design and coding for TI DSP processors

TEACHING

Sep. 2010 – Jul. 2011:
Digital Design (Teacher Assistant), Amirkabir University of Technology

THESES

M.S. Thesis (2011):
Multiple speaker localization in reverberant environments using convolutive blind source separation.

MEMBERSHIPS

- Student member, IEEE
- Member, ISCA

REFERENCES

Dr. John H.L. Hansen, Professor
Electrical Engineering Department, The University of Texas at Dallas
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