Seyed Hamidreza (Hamid) Mohammadi

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RESEARCH INTERESTS

Speech Signal Processing, Text-to-Speech Synthesis, Automatic Speech Recognition, Deep Neural Networks, Machine Learning, Data Mining

EDUCATION

Ph.D., Computer Science and Engineering
Oregon Health and Science University, Portland, OR, expected February 2016

M.Sc., Computer Engineering, Artificial Intelligence
Sharif University of Technology, Tehran, IRAN, September 2011

B.Sc., Computer Engineering, Software Engineering
Isfahan University of Technology, Isfahan, IRAN, September 2009

POSITIONS

Nookster Inc., Pasadena, CA — June 2015 - Present
Research Scientist

- Research on deep learning applied to speech and language processing
- Research on voice conversion and text-to-speech synthesis

Biospeech, Inc., Portland, OR — Summer 2013
Researcher and Developer

- Improving the naturalness of a Unit-Selection Speech Synthesizer system by improving the interpolation techniques (Python)

Center for Spoken Language Processing, OHSU, Portland, OR 2011 - Present
Research Assistant

- Developing various voice conversion methods, including frequency warping, deep neural networks, gaussian mixture models, hidden markov models, etc
- Making conversational speech more clear with application to improving intelligibility in hearing-aid devices (Python, and C for optimization)

Speech Processing Lab. *and* ***ASR Co.***, Tehran, IRAN — Fall 2009 - Fall 2011
Researcher and Developer

- Improving speaker diarization by improving speaker segmentation (MATLAB)
- Participated in developing a speaker diarization System over Telephone (C++)

Artificial Intelligence Lab., IUT, Isafahan, IRAN — Summer 2008
Undergrad Research Assistant

- Persian Isolated Word Recognition using hybrid ANN/HMM approach in (C#)

Nikan Data Mining Co., Isfahan, IRAN — Summer 2008
Co-Founder and Manager

- Designer and Developer of Admiral Hospital Information System (C#.NET)

PATENTS

S.H. Mohammadi*, DNN-based Real-time Voice Conversion, US Patent, Filed Provisionally 2015.*

PUBLICATIONS

***S.H. Mohammadi**, A. Kain, An overview of voice conversion systems, Speech Communication. (submitted)*

***S.H. Mohammadi**, Reducing one-to-many problem in Voice Conversion by equalizing the formant locations using dynamic frequency warping, arXiv:1510.04205, 2015. (not peer-reviewed)*

***S.H. Mohammadi**, A. Kain, Semi-supervised Training of a Voice Conversion Mapping Function using Joint-Autoencoder, Interspeech 2015.*

*M.S. Elyasi Langarani, J. van Santen, **S.H. Mohammadi**, A. Kain, Data-driven Foot-based Intonation Generator for Text-to-Speech Synthesis, Interspeech 2015.*

***S.H. Mohammadi**, A. Kain, Voice Conversion Using Deep Neural Networks With Speaker-Independent Pre-Training, SLT 2014.*

***S.H. Mohammadi**, A. Kain, Transmutative Voice Conversion, ICASSP 2013.*

***S.H. Mohammadi**, A. Kain, J. van Santen, Making Conversational Vowels More Clear, Interspeech 2012.*

***S.H. Mohammadi**, H. Sameti, M.S. Elyasi Langarani, A. Tavanaei, KNNDIST: A Nonparametric distance measure for speaker segmentation, Interspeech 2012.*

*E. Morley, E. Klabbers, J. van Santen, A. Kain, **S.H. Mohammadi**, Synthetic F0 Can Effectively Convey Speaker ID in Delexicalized Speech, Interspeech 2012.*

*S. Bahaadini, H. Sameti, F. Jabbari, **S.H. Mohammadi**, Glottal Pulse Shape Optimization using Simulated Annealing, AISP 2012.*

***S.H. Mohammadi**, H. Sameti, A. Tavanaei, A. Soltani-Farani, Filter-bank Design Based on Dependencies Between Frequency Components and Phoneme Characteristics, EUSIPCO 2011.*

*A. Tavanaei, H. Sameti, **S.H. Mohammadi**, False alarm reduction by improved filler model and post-processing in speech keyword spotting, MLSP 2011.*

*S. Bahaadini, H. Sameti, **S.H. Mohammadi**, Comparative study of different excitation signals on Mel-generalized cepstral synthesis filters, AISP 2011.*

***S.H. Mohammadi**, S. Darabi, M. Mahdavi, Moving from C to C++ (translation from English to Persian), IUT Press, Summer 2006.*

TALKS AND PRESENTATION

Recent advances in Speech Generation using Deep Learning Techniques, **Guest Lecturer**, Deep Learning Course at OHSU Fall 2015, 2015-09-28.

Deep Learning, **Guest Lecturer**, Machine Learning Course at OHSU Spring 2015, 2015-06-01.

Deep Learning for Feature Learning and Feature Mapping, CSLU Seminar, 2015-02-03.

Voice Conversion Using Deep Neural Networks With Speaker-Independent Pre-Training, Poster presentation at SLT 2014, 2014-12-08.

Exploring different voice conversion approaches and their applications, Ph.D. Qualifying Exam Talk, 2014-06-09.

Deep Learning strategies for Voice Conversion, CSLU Seminar, 2014-03-10.

Asynchronous Interpolation Model, CSLU Seminar, 2013-08-19.

Transmutative Voice Conversion, CSLU Seminar, 2013-06-10.

Making Conversational Vowels More Clear, CSLU Seminar, 2012-06-19.

Speaker Diarization in adverse conditions, CSLU Seminar, 2011-11-22.

TEACHING

Guest Lecturer, Recent advances in Speech Generation using Deep Learning Techniques, Advanced Machine Learning Course at OHSU Fall 2015, 2015-09-28.

Guest Lecturer, Deep Learning, Machine Learning Course at OHSU Spring 2015, 2015-06-01.
Teaching Assistant, Speech Processing, Sharif University of Technology, Fall 2010.
Teaching Assistant, Speech Recognition, Sharif University of Technology, Winter 2010.
Teaching Assistant, Neural Network, Sharif University of Technology, Spring 2011.

ACTIVITIES

Reviewer, ICASSP 2016, Interspeech 2015, IEEE Transactions on Audio, Speech, and Language Processing, International Conference on Computer and Communication Technology 2015.
Organizing Committee, Interspeech 2012 conference, Portland, OR.
Member, CSLU Graduate Admission Committee
Member, IEEE Signal Processing Society
Member, IEEE Student
Member, ISCA (International Speech Communication Association)

COMPUTER SKILLS

Languages: Python, C, C++, Perl, C#.NET, Java, MATLAB, R
Toolkits: Theano, HTS, Festival, Kaldi, HTK, CSLU

RELEVANT COURSEWORK

Speech Recognition with Deep Nets (OHSU-audit), Audio Signal Processing for Music Applications (Coursera), Speech Recognition(SUT), Speech Processing (SUT), Speech Signal Processing (OHSU), Advanced Digital Signal Processing (SUT), Digital Signal Processing (SUT),
Deep Learning (OHSU-audit), Machine Learning (Coursera), Machine Learning(OHSU-audit), Probabilistic Graphical Models (OHSU), Machine Learning (SUT), Neural Networks (SUT), Statistical Pattern Recognition (IUT), Pattern Discovery in Data Mining (Coursera), Mining Massive Datasets (Coursera), Introduction to Data Science (Coursera), Analyzing Sequences (OHSU), Advanced Topics in Information Retrieval (OHSU), Text Normalization (OHSU), Computational Linguistics (SUT), Data Mining (IUT), Artificial Intelligence (IUT), Heterogeneous Parallel Programming (Coursera)

GitHub REPOSITORIES

dnnmapper, deep neural network (dnn) Implementation in theano/python for Feature mapping with application to voice conversion (under development)
hts-formant, synthesizing formant frequency from text using HTS 2.2
festival-features, a script for importing Festival contextual features into python
pylearn2-wrapper, a simple wrapper/script for pylearn2, which includes denoising autoencoders and dnns
unitselection, a unit-selection text-to-speech synthesis system in python (under development)
deepcca, a python/numpy code for deep canonical correlation analysis (dcca)

LANGUAGES

Persian (Farsi): Native, English: Professional, Arabic: Elementary

REFERENCES

Jan van Santen, *Professor, Center for Spoken Language Understanding, Oregon Health and Science University,* `vansantj@ohsu.edu` .
Alexander Kain, *Associate Professor, Center for Spoken Language Understanding, Oregon Health and Science University,* `kaina@ohsu.edu` .