Seyed Hamidreza (Hamid) Mohammadi

Center for Spoken Language Understanding
Oregon Health and Science University
Portland, Oregon, U.S.A.
E-mail: `mohammah@ohsu.edu`
Website: `shamidreza.github.io`

RESEARCH INTERESTS

Speech Signal Processing, Text-to-Speech (TTS) Synthesis, Voice Conversion (VC)
Machine Learning, Deep Neural Networks

EDUCATION

Ph.D., Computer Science and Engineering
Oregon Health and Science University, Portland, OR, expected 2017

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

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

- Leading an R&D team for implementing a text-to-speech adaptation system
- Researching and inventing methods for improving VC and TTS systems
- Developed techniques for DNN-based many-to-many voice conversion
- Developed LSTM and Adversarial training for TTS and VC acoustic modeling
- Developed cross-lingual VC and TTS adaptation techiques

Biospeech, Inc., Portland, OR — Summer 2013
Speech Research Intern

- Improving the naturalness of a Unit-Selection Speech Synthesizer system by improving the interpolation techniques
- Improving the naturalness of a Unit-Selection Speech Synthesizer system by doing energy normalization

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

- Developing various voice conversion methods, including frequency warping, deep neural networks, joint-autoencoders, gaussian mixture models, hidden markov models, etc
- Making conversational speech more clear with application to improving intelligibility in hearing-aid devices

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#)

COMPUTER SKILLS

Languages: Python, C, C++, C#, ...
Toolkits: Theano, TensorFlow, Keras, Merlin, HTS, Festival, HTK

PUBLICATIONS

S.H. Mohammadi, *A. Kain, Siamese Autoencoders for Speech Style Extraction and Switching Applied to Voice Identification and Conversion, Interspeech, 2017 (Accepted).*

S.H. Mohammadi, *A. Kain, An overview of voice conversion systems, Speech Communication, 2017.*

S.H. Mohammadi, *A. Kain, A Voice Conversion Mapping Function based on a Stacked Joint-Autoencoder, Interspeech 2016.*

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.*

S.H. Mohammadi, *Reducing one-to-many problem in Voice Conversion by equalizing the formant locations using dynamic frequency warping, arXiv:1510.04205, 2015.*

TEACHING

Guest Lecturer, Introduction to Deep Learning, Advanced Topics in Speech Processing Course at UCLA Spring 2017, 2017-04-18.
Guest Lecturer, Capturing and Synthesizing Human Voice, Speech Processing Course at UCLA Spring 2016, 2016-04-13.
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 Tech., Fall 2010.
Teaching Assistant, Speech Recognition, Sharif University of Tech., Winter 2010.
Teaching Assistant, Neural Networks, Sharif University of Tech., Spring 2011.

ACTIVITIES

Reviewer, IEEE Transactions on Audio, Speech, and Language Processing, ICASSP 2016, Interspeech 2015 and 2016, ICCCT 2015.
Organizing Committee, Interspeech 2012 conference, Portland, OR.
Member, CSLU Graduate Admission Committee
Student Member, ISCA, IEEE Signal Processing Society

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
unitselection, a unit-selection text-to-speech synthesis system in python
deepcca, a python/numpy code for deep canonical correlation analysis (dcca)

LANGUAGES

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

REFERENCES

Available upon request.