Vijayaditya Peddinti

CONTACT INFORMATION

Center for language and Speech Processing (CLSP)
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RESEARCH INTERESTS

Speech signal processing and Machine Learning with focus on Acoustic modeling for robust speech recognition

EDUCATION

Whiting School of Engineering, Johns Hopkins University

Ph.D. Candidate, ECE (expected July 2016)

- Dissertation Topic: Distortion stable sequence recognition using multi-rate neural networks
- Advisor: Daniel Povey and Sanjeev Khudanpur

International Institute of Information Technology - Hyderabad

M.S. by Research, CS, May 2011

- Dissertation Topic: Synthesis of missing units in a Telugu text-to-speech system
- Advisor: Kishore Prahallad

Dhirubhai Ambani Inst. of Inf. and Comm. Technology (DAIICT)

B.Tech. in Information and Communication Technology, May 2007

- Topic: Note Histogram based hash function for Content Based Music Information Retrieval (CBMIR)
- Advisor: Vijaykumar Chakka

ACHIEVEMENTS

- Recipient of the Frederick Jelinek Fellowship 2015
- Winner of the IARPA ASpIRE far field recognition challenge, 2015
- Recipient of the best student paper award at Interspeech 2015

PUBLICATIONS

1. **Vijayaditya Peddinti**, Guoguo Chen, Vimal Manohar, Tom Ko, Daniel Povey and Sanjeev Khudanpur, *JHU ASpIRE system: Robust LVCSR with TDNNs, iVector adaptation and RNN-LMs*, in Proceedings of ASRU 2015
2. **Vijayaditya Peddinti**, Daniel Povey, Sanjeev Khudanpur, *A time delay neural network architecture for efficient modeling of long temporal contexts*, in Proceedings of INTERSPEECH 2015
   Best paper award
3. **Vijayaditya Peddinti**, Guoguo Chen, Daniel Povey, Sanjeev Khudanpur, *Reverberation robust acoustic modeling using i-vectors with time delay neural networks*, in Proceedings of INTERSPEECH 2015
   Winner of the IARPA ASpIRE far field recognition challenge
4. Tom Ko, **Vijayaditya Peddinti**, Daniel Povey, Sanjeev Khudanpur, *Audio Augmentation for Speech Recognition*, in Proceedings of INTERSPEECH 2015

5. Tara Sainath, **Vijayaditya Peddinti**, Brian Kingsbury, Petr Fousek, Bhuvana Ramabhadran and David Nahamoo, *Deep Scattering Spectra with Deep Neural Networks for LVCSR Tasks*, in Proceedings of INTERSPEECH 2014
6. Thomas Schatz, **Vijayaditya Peddinti**, Xuan-Nga Cao, Francis Bach, Hynek Hermansky and Emmanuel Dupoux, *Evaluating speech features with the Minimal-Pair ABX task (II): Resistance to noise*, in Proceedings of INTERSPEECH 2014
7. **Vijayaditya Peddinti**, Tara Sainath, Shay Maymon, Bhuvana Ramabhadran, David Nahamoo, Vaibhava Goel, *Deep Scattering Spectrum with Deep Neural Networks*, in Proceedings of ICASSP 2014
8. Thomas Schatz, **Vijayaditya Peddinti**, Francis Bach, Aren Jansen, Hynek Hermansky and Emmanuel Dupoux, *Evaluating speech features with the Minimal-Pair ABX task: Analysis of the classical MFC/PLP pipeline*, in Proceedings of INTERSPEECH 2013, Lyon
9. **Vijayaditya Peddinti** and Hynek Hermansky, *Filter-bank optimization for frequency domain linear prediction*, in Proceedings of ICASSP 2013, Vancouver
10. Hynek Hermansky, Ehsan Variani and **Vijayaditya Peddinti**, *Mean temporal distance: Predicting ASR error from temporal properties of speech signal*, in Proceedings of ICASSP 2013, Vancouver
11. Aren Jansen,et al, *A summary of the 2012 JHU CLSP workshop on zero resource speech technologies and models of early language acquisition*, in Proceedings of ICASSP 2013, Vancouver
12. **Vijayaditya Peddinti** and Kishore Prahallad, *Significance of epenthesis for Text-To-Speech synthesis in Telugu*, in Proceedings of ICASSP, 2011, Prague
13. **Vijayaditya Peddinti** and Kishore Prahallad, *Exploiting Phone-class specific Landmarks for Refinement of Segment Boundaries in TTS Databases*, in Proceedings of INTERSPEECH, 2011, Florence
14. Hema A. Murthy,et al, *Building Unit Selection Speech Synthesizers in Indian Languages: An Initiative by Indian Consortium*, In Proceedings of Oriental COCOSDA, 2010, Kathmandu, Nepal
15. Veera Raghavendra Elluru, **Vijayaditya Peddinti** and Kishore Prahallad. *Speech Synthesis using Artifical Neural Networks*, in Proceedings of National Conference on Communications (NCC), 2010, Chennai, India

Research and Industrial Experience

Jul '15–Aug '15 **Jelinek Summer Workshop on Speech and Language Technology**
Member of the far-field speech processing team

Sep '14–Nov '14 **Research Intern at Microsoft Research in Speech Recognition Group**
Designed an auxiliary objective for distortion stable DNN training
Mentor : Mike Seltzer

Jul '14–Jul '14 **Fred Jelinek Memorial Workshop, Prague**
Member of the Speech team working on ASR error prediction in mismatch conditions

May '13–Aug '13 **Research Intern at IBM T.J. Watson Research Center in Speech Transcription Technologies**
Involved in the use of Deep Scattering Spectrum in acoustic modelling for speech recognition

Mentor : Tara Sainath

Jun '12 **Zero Resource Speech Technologies and Models of Early Language Acquisition Summer workshop**
Developed speaker invariant features for keyword spotting in zero resource scenarios (published in ICASSP, 2013).

Apr '14 - Jul '14 **Visiting researcher at Speech group, Brno University of Technology**

May '15 - Jun '15

Aug '11–Present **Research Assistant at Center for Language and Speech Processing, Johns Hopkins University.**
Robust Automatic Transcription of Speech (RATS): Funded by DARPA
Developed feature extraction techniques for noise robust acoustic modeling (published in ICASSP, 2013).

Jan '11–Jul '11 **Analytics Intern at I-Labs, [24]7 Inc.**
Involved in algorithm development for event detection in volume time series created from multiple data streams like microblogs (like Twitter), social networks (like Facebook) and Chats (from customer service centers).

Dec '08–Dec '10 **Research Assistant at IIIT-Hyd at the Speech and Vision Lab**
Indian Language TTS , Funded By Ministry of Commn. & Info. Tech., India (MCIT)
Involved in the development of a text-to-speech (TTS) synthesizer for Telugu. Developed an algorithm for automatic segmentation of audio databases (published in Interspeech, 2011) and designed a back-off strategy for missing units (published in ICASSP,2011), implementation syllable based synthesizer in the Festival framework.

Jul '07–Jul '08 **Technical Associate at Techmahindra Ltd.**

Teaching Experience

Spring	2013	Teaching Assistant, Speech and audio processing by humans and machines
Fall	2012,2013	Teaching Assistant, Processing of audio and visual signals

Graduate Coursework

- ❑ Speech and audio processing by humans and machines
- ❑ Information Extraction
- ❑ Matrix Analysis
- ❑ Random Signal Analysis
- ❑ Machine Learning in Complex Domains
- ❑ Processing of audio and visual signals
- ❑ Wavelets and Filter Banks
- ❑ Computational Molecular Medicine (Techniques for Pattern Recognition in low data scenarios)
- ❑ Optimization

Programming

Languages: C++, Python, shell script, MATLAB
Toolkits: Kaldi, PyLearn2, Theano

References Will be provided on request.