Vimal Manohar

CONTACT INFORMATION

The Center for Language and Speech Processing,
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RESEARCH INTERESTS

Speech Processing, Machine Learning, Natural Language Processing

EDUCATION

Johns Hopkins University, Baltimore, MD
Major: Electrical & Computer Engineering
Master of Science in Engineering (M.S.E.), 2015
Ph.D., 2018 (Expected)
Advisors: Sanjeev Khudanpur and Daniel Povey

Indian Institute of Technology Madras, Chennai, India
Major: Electrical Engineering, Minor: Operations Research
Bachelor of Technology (B.Tech), 2013 (CGPA: 9.6/10)
Advisor: S Umesh,

KEY PUBLICATIONS

- **Manohar, V.**; Povey, D. et al., *''Semi-Supervised Training of Acoustic Models using Lattice-Free MMI,"* ICASSP 2018.
- **Manohar, V.**; Povey, D. et al., *"JHU Kaldi system for Arabic MGB-3 ASR challenge using diarization, audio-transcript alignment and transfer learning,"* Automatic Speech Recognition and Understanding (ASRU), 2017 IEEE Workshop on. 2017.
- Ghahremani, P.; **Manohar, V.** et al. *"Investigation of Transfer Learning for ASR using LF-MMI Trained Neural Networks,"* Automatic Speech Recognition and Understanding (ASRU), 2017 IEEE Workshop on. 2017.
- Povey, D.; Peddinti, V.; **Manohar, V.** et al., *"Purely Sequence-Trained Neural Networks for ASR Based on Lattice-Free MMI,"* Interspeech, pp. 2751-2755. 2016.
- Peddinti, V.; **Manohar, V.** et al., *"Far-Field ASR Without Parallel Data,"* INTERSPEECH 2016
- Liu, C.; Jyothi, P.; **Manohar, V.** et al., *"Adapting ASR for under-resourced languages using mismatched transcriptions,"* Acoustics, Speech and Signal Processing (ICASSP), 2016 IEEE Internation Conference on
- Peddinti, V.; Chen, G.; **Manohar, V.** et al., *"JHU ASpIRE system: Robust LVCSR with TDNNs, iVector adaptation and RNN-LMs,"* Automatic Speech Recognition and Understanding (ASRU), 2015 IEEE Workshop on
- **Manohar, V.**; Povey, D.; Khudanpur, S., *"Semi-supervised Maximum Mutual Information Training of Deep Neural Network Acoustic Model,"* INTERSPEECH 2015. **Nominated for best students' paper award**.
- Trmal, J.; **Manohar, V.** et al., *"A keyword search system using open source software,"* Spoken Language Technology Workshop (SLT), 2014 IEEE, pp.530,535
- **Manohar, V.**; Srinivas, C.B.; Umesh, S., *"Acoustic modeling using transform-based phone-cluster adaptive training,"* Automatic Speech Recognition and Understanding (ASRU), 2013 IEEE Workshop on , pp.49,54

RESEARCH AND INDUSTRIAL EXPERIENCE

Intern at Microsoft Research in Speech and Dialog Group
Mentor: Mike Seltzer June – August '16

Jelinek Summer Workshop on Speech and Language Technology (JSALT) 2015
University of Washington Seattle, Seattle, WAS, USA July – August '15
Member of the research group working on "Probabilitic Transcription of Languages with

no native-language transcribers". We showed the utility of mismatched transcriptions from non-native crowdworkers for ASR.

Research Assistant at the Center for Language and Speech Processing
Johns Hopkins University, Baltimore, MD, USA Aug '13 – Present

MGB-3 Challenge 2017
Worked on speaker diarization, lightly-supervised ASR and transfer learning across domains and dialects (ASRU 2017)

NIST OpenSAT 2017
Worked on neural network-based speech activity detection using LSTM and statistics pooling for long temporal context

IARPA Babel
Low-resource ASR, speech segmentation, semi-supervised training for ASR

DARPA BOLT
Multilingual DNN for transfer learning across dialects

Intern at Analog Devices Inc.
Cambridge, MA, USA May – Aug '14
Worked on time-frequency masks with multichannel audio for robust speech recognition

Bachelor's Thesis Project
Indian Institute of Technology Madras, Chennai, India Sept '12 – May '13
Proposed phone cluster-adaptive training model for low-resource ASR. (ASRU, 2013)

Research Intern at The Institute of Automation
University of Bremen, Bremen, Germany May – July '12
Worked on modeling 3D objects from stereo images.

Texas Instruments Analog Design Contest 2011
Indian Institute of Technology Madras, Chennai, India Sept '11 – Feb '12
Designed and constructed a pulse oximeter on an embedded system for real-time estimation of respiratory rate. Among the top 25 entries to the TI India Analog Design Contest 2011.

Teaching Experience

Fall 2015 Teaching Assistant, Random Signal Analysis

Coursework

- ❑ Representation learning
- ❑ Random Signal Analysis
- ❑ Natural language processing
- ❑ Speech and audio processing by humans and machines
- ❑ Non-linear optimization
- ❑ Information Extraction from text and speech
- ❑ Compressed Sensing and Sparse Recovery
- ❑ Information Theory
- ❑ Speech Technology
- ❑ Matrix Analysis
- ❑ Graph Theory
- ❑ Advanced Operations Research
- ❑ Computer Vision
- ❑ Advanced DSP

Distinctions

- ECE Graduate Fellowship 2013, Johns Hopkins University
- Hamburger Fellowship 2013, Johns Hopkins University
- WISE Scholarship 2012, DAAD, Germany
- All India Rank **191** in IIT-Joint Entrance Examination (IIT-JEE) 2009 (among over 400,000 students)
- Kishore Vaignayik Protsahan Yojana (KVPY) Fellowship 2008, Govt. of India
- National Talent Search (NTS) Scholarship 2007, Govt. of India
- Member of IIT Madras team at the National Robotics Contest, Abu Robocon 2011. Placed among the Top 5 in India

Skills	Languages:	C/C++, Python, Bash, MATLAB
	Toolkits:	KALDI, HTK, CNTK

References Will be provided on request.