

AKSHAY CHANDRASHEKARAN

Carnegie Mellon University
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EDUCATION

Carnegie Mellon University *Advisor: Prof. Ian Lane* Moffett Field, CA
PhD. Candidate in Electrical and Computer Engineering, GPA: 3.64/4.0 *Jan 2012 - Present*

Carnegie Mellon University Pittsburgh, PA
M.S. in Electrical and Computer Engineering, GPA: 3.63/4.00 *Aug-2011- Dec 2011*

Vishwakarma Institute of Technology Pune, India
B.E. in Electronics and Telecommunication, CPA: 8.1/10 *Aug 2006 - May 2010*

Research Interests

My research interests include automated multi-objective optimization of hyper-parameters, and speech recognition on embedded platforms

RESEARCH AND WORK EXPERIENCE

Capio Inc. Belmont, CA
Speech Scientist *June 2017 - Present*

- Working as a speech scientist to accelerate optimization of neural network-based speech recognition models.
- Working on rapid development of Speech recognition models for multiple low-resource languages.
- Integration of Automated hyper-parameter optimization techniques for ASR model combination.
- Exploratory work on online speaker change detection.
- Integration of dynamic word addition to online speech recognition.
- Integration of automated hyper-parameter optimization for decoder hyper-parameters.

Carnegie Mellon University Silicon Valley Moffett Field, CA
PhD. Candidate *Jan 2012 - Present*

- Currently working on Automated Multi-objective hyper-parameter optimization for speech recognition.
- Working on development and analysis of methods to utilize validation curves from previous hyper-parameter configurations to predict the terminal performance of the current configuration.
- Worked on development of a hierarchical optimization technique for feature, model and decoder hyper-parameters to jointly optimize towards word error rate and computational efficiency.
- Worked on speech recognition for low resource languages.
- Worked on Speech recognition on mobile and embedded platforms.
- Developed Deep Neural Network Acoustic models for Android Platform using openCL.
- Developed LSTM Acoustic model implementations using openCL.

Baidu SVAIL Sunnyvale, CA
Research Intern *May 2016 - Aug 2016*

- Worked on importance sampling-based data sampling techniques to improve training time for speech recognition.

Lenovo
Research Intern

San Jose, CA
Oct 2013 - June 2014

- Developed a software framework for multi-modal interaction for applications in mobile devices.
- Co-inventor in three resultant patents.

Carnegie Mellon University
Graduate Assistant

Pittsburgh, PA
Jan 2011 - Dec 2011

- Researched on imagined speech classification using Electro-Encephalogram (EEG) signals

Carnegie Mellon University
Graduate Assistant

Pittsburgh, PA
Aug 2010 - Dec 2010

- Synaptic Bouton detection from images of visual cortex of a tree shrew.

PATENTS

1. A. Raux, A. Chandrashekar, “*Multi-Modal Fusion Engine*” (2014)
2. A. Raux, A. Chandrashekar, “*Selecting Multimodal Elements*” (2014)
3. A. Raux, A. Chandrashekar, “*Identification of User Input Within an Application*” (2014)

PUBLICATIONS

1. A. Chandrashekar, I. Lane, “*Auto-ML for Automated Optimization of Speech Recognition on Mobile Devices*”, GTC 2018 (Poster)
2. K. Han, A. Chandrashekar, J. Kim, I. Lane, “*Densely Connected Networks for Conversational Speech Recognition*”, Interspeech 2018 (Submitted)
3. K. Han, A. Chandrashekar, J. Kim, I. Lane, “*The CAPIO 2017 Conversational Speech Recognition System*”, ArXiv Preprint 1801.00059
4. A. Chandrashekar, I. Lane “*Speeding up Hyper-parameter Optimization by Extrapolation of Learning Curves using Previous Builds*”, ECML 2017
5. A. Chandrashekar, I. Lane, “*Hierarchical Constrained Bayesian Optimization for Feature, Acoustic Model and Decoder Parameter Optimization*”, Interspeech 2017.
6. A. Chandrashekar, I. Lane, “*Automated optimization of decoder hyper-parameters for online LVCSR*”, Spoken Language Technologies Workshop (SLT 2016).
7. A. Chandrashekar, I. Lane, “*Automated Feature and Model Optimization for Task-specific Acoustic Models*”, BayLearn 2015 (Poster).
8. D. Cohen, A. Chandrashekar, I. Lane, A. Raux, “*The hri-cmu corpus of situated in-car interactions.*”, Proceedings for International Workshop Series on Spoken Dialogue Systems Technology (IWSDS 2014).
9. I. Lane, V. Prasad, G. Sinha, A. Umuhoza, S. Luo, A. Chandrashekar, A. Raux, “*HRIItk: the human-robot interaction ToolKit rapid development of speech-centric interactive systems in ROS.*” NAACL-HLT Workshop on Future Directions and Needs in the Spoken Dialog Community: Tools and Data (NAACL-HLT 2012). Association for Computational Linguistics.

TEACHING

How to write Fast Code

Spring 2015, Spring 2016

- Lead TA for openMP and SIMD sections of 18645-How To Write Fast Code course

MISCELLANEOUS ACADEMIA

Reviewer for NAACL 2018.

CONTESTS AND AWARDS

- Emirates Travel Hackathon 2013 Winner in the best windows phone app category.
- NestGSV Hackathon 2014 Vuzix Glass Winner.

OTHER ACTIVITIES

- Member of Eta Kappa Nu since Jan 2011.
- Chair-person for ECE Graduate Organization, Silicon Valley Branch from Aug 2012 to July 2013.
- Committee Member of Master's Advisory Council at Carnegie Mellon University from Jan 2011 to Dec 2011.
- Executive Committee Member for IEEE Student Branch in Vishwakarma Institute of Technology from 2008-2009.
- Member of Editorial Board for the college magazine at Vishwakarma Institute of Technology from 2008-2010.

PERSONAL ATTRIBUTES

- Programming Languages: Python, C, C++, Java, Matlab, CUDA, and OpenCL.
- Proficient in the usage of Kaldi Speech recognition toolkit.
- Intermediate expertise in usage of MXNet, TensorFlow.
- Fluent in English, Tamil, Hindi, and Marathi.
- I enjoy long distance running, hiking, reading, soccer, and playing the guitar, synthesizer, and ukelele.