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Research Interests

My research interests are mainly in the application of machine learning and statistics to speech and audio signal analysis. I am currently working on emotion morphing in speech which is a sub-domain of expressive speech synthesis.

Education

Johns Hopkins University, Baltimore *(2017 - present)*
Ph.D. student, Department of Electrical and Computer Engineering
Advisor: Dr. Archana Venkataraman

Indian Institute of Technology, Guwahati *(2011 - 2015)*
Bachelors in Technology (BTech.) in Electronics and Electrical Engineering
Advisors: Dr. S.R.M Prasanna and Dr. S. Sundaram

Publications

A Diffeomorphic Flow-based Variational Framework for Emotion Conversion
Ravi Shankar, Hsi-Wei Hsieh, Nicholas Charon, Archana Venkataraman
Under Review (IEEE Tran.).

Adaptive Speech Duration Modification using a Deep-generative Framework
Ravi Shankar, Archana Venkataraman
Under Review (ICLR, 2022).

Non-parallel Emotion Conversion using a Deep-Generative Hybrid Network and an Adversarial Pair Discriminator
Ravi Shankar, Jacob Sager, Archana Venkataraman
Published in **Interspeech 2020**. ***Virtual**

Multi-speaker Emotion Conversion via Latent Variable Regularization and A Chained Encoder-Decoder-Predictor Network
Ravi Shankar, Hsi-Wei Hsieh, Nicolas Charon, Archana Venkataraman
Published in **Interspeech 2020**. ***Virtual**

A Multi-Speaker Emotion Morphing Model Using Highway Networks and Maximum Likelihood Objective
Ravi Shankar, Jacob Sager, Archana Venkataraman
Published in **Interspeech 2019**. **Oral**

VESUS: A Crowd-Annotated Database to Study Emotion Production and Perception in Spoken English
Jacob Sager, **Ravi Shankar**, Archana Venkataraman
Published in **Interspeech 2019**. **Oral**

Weakly Supervised Syllable Segmentation by Vowel-Consonant Peak Classification
Ravi Shankar, Archana Venkataraman
Published in **Interspeech 2019**. *Poster

Automated Emotion Morphing in Speech Based on Diffeomorphic Curve Registration and Highway Networks
Ravi Shankar, Hsi-Wei Hsieh, Nicolas Charon, Archana Venkataraman
Published in **Interspeech 2019**. *Poster

Spoken Keyword Detection Using Joint DTW-CNN
Ravi Shankar, Vikram C.M., S.R.M Prasanna
Published in **Interspeech 2018**. ****Oral**

Spoken Term Detection using DTW and Morphological Operations
Ravi Shankar, Arpit Jain, Deepak K.T., Vikram C.M., S.R.M Prasanna
Published in **NCC 2016**. ***Poster**

Skills

Statistical Modeling, Python, Tensorflow, PyTorch, Deep Learning

Invited Talks

Variational Cycle-GAN for Emotion Morphing, **CIS Seminar, JHU**
Machine Learning for Expressive Speech Synthesis, **Assam AI Initiative, India**

Work Experience

iOS Developer, **Housing.com**, Mumbai	*(June 2015 - Sep 2015)*
Research Staff, **University of Alberta**, Edmonton	*(Sep 2015 - Jan 2016)*
Data Scientist, **CaRPM**, Gurgaon	*(Jan 2016 - Aug 2016)*
Research Staff, **IDIAP Research Institute**, Martigny	*(Dec 2017 - June 2017)*

Honours and Awards

NVIDIA Research Fellowship, featured among the top 5% proposals.

ISCA 2020 Travel Award for Encoder-Decoder-Predictor model.

MINDS Data Science Research Fellowship (JHU) for 2019-20 and 2020-21.

Institute Merit Scholarship (IIT Guwahati) for 2012-13.

DAAD-WISE Scholarship (German Academic Exchange Program) for 2014.

Merit-Cum-Means Scholarship (IIT Guwahati) for 2012-13, 2013-14 and, 2014-15.

Graduate Research Fellowship (JHU) for 2017-18.

References

Dr. Archana Venkataraman (<firstname>.<lastname>@jhu.edu), **Assistant Professor, ECE**, JHU
Dr. Nicolas Charon (<lastname>@cis.jhu.edu), **Assistant Professor, AMS**, JHU
Prof. S.R.M. Prasanna, (<lastname>.iitdh.ac.in), **Professor, EE**, IIT Dharwad