

Dear Colleagues and students,

This to inform you that a talk is scheduled on 14th Sep. 2018. The details are provided below.

**Title: Articulatory representations to address acoustic variability in speech**

**Who: Dr. Ganesh Sivaraman**

**When: 14th Sep. 2018, 4:00PM to 5:00PM**

**Where: will be announced soon.**

### **Abstract**

The past decade has seen phenomenal improvement in the performance of Automatic Speech Recognition (ASR) systems. In spite of this vast improvement in performance, the state-of-the-art still lags behind human speech recognition. Even though certain systems claim super-human performance, this performance often is sub-par across domains and across datasets. This gap is predominantly due to the lack of robustness against speech variability. In this talk I will present articulatory feature based approaches to analyze the variability of speech and address speech variability in Automatic Speech Recognition (ASR) using articulatory representations.

The first part of the talk focuses on a speaker independent acoustic-to-articulatory inversion to estimate vocal tract constriction variables (TVs) and articulatory gestures from speech. The second part is about analysis of the articulatory trajectories under different types of variability such as multiple speakers, speaking rate, and accents. I will also present a speaker adaptation algorithm for speech inversion based on Vocal Tract Length Normalization. The final part of the talk presents articulatory feature based state-of-the-art medium and large vocabulary ASR systems, using a hybrid convolutional neural network (CNN) architecture developed to fuse the acoustic and articulatory feature streams in an ASR system.

**Bio:** Ganesh Sivaraman is a Research Scientist at Pindrop, in Atlanta, USA. He received his M.S. (2013) and Ph.D. (2017) in Electrical Engineering from University of Maryland College Park, and, B.E. (Hons) in Electrical Engineering from Birla Institute of Technology and Science, Goa, India. Ganesh was a Future Faculty Fellow of the A. James Clark School of Engineering at the University of Maryland. His research focuses on speaker independent acoustic-to-articulatory inversion, robust speech recognition, speaker adaptation, speech enhancement, and speaker recognition. Apart from his official work, he is actively involved in teaching, mentoring, and collaborating with students at the University of Maryland College Park.

**All are welcome!**