Indian Institute of Science and
The IEEE Signal Processing Society, Bangalore Chapter
Cordially invites you to the following talk on

"Unsupervised adaptation in speech technologies"

Speaker: Dr. Ganesh Sivaraman, Pindrop, Atlanta, USA
Date and Time: 11th November 2022 at 11:30am to 12:30pm
Venue: MMCR (Room No. C241), 1st Floor, Dept. of Electrical Engineering

Abstract of the talk

Unsupervised learning and adaptation techniques have taken center stage due to the exponential growth of unlabeled data. For many practical applications unsupervised learning helps in the adaptation of machine learning systems to mismatched train and test domains. Unsupervised adaptation can be performed by three broad approaches - 1) feature transformations in the test domain, 2) model adaptation to test domain, and 3) generation of synthetic test domain samples. This talk will outline these methods by showing three specific examples from speech processing. Unsupervised speaker adaptation for acoustic-to-articulatory speech inversion serves as an example of feature transformation-based adaptation. Adaptation of end-to-end ASR systems without manual transcriptions will be presented as an example of model adaptation. Finally, children's speech simulation for zero-shot child speech classification using X-vectors will be presented as an example of synthetic data generation for the test domain.

Biography

Ganesh Sivaraman is a Senior Research Scientist at Pindrop, in Atlanta, USA. He received his M.S. (2013) and Ph.D. (2017) in Electrical Engineering from the University of Maryland College Park. His research experience and publications span several speech technologies like acoustic-to-articulatory inversion, ASR, speaker recognition, deepfake detection, and speech enhancement. During his PhD at Maryland, he was awarded the Future Faculty Fellowship, and the International Graduate Research Fellowship by the A. James Clark School of Engineering. Along with his official work, he is actively involved in teaching, mentoring, and collaborating with doctoral students at Maryland.
Apart from research work, Ganesh is a fluent speaker of Sanskrit actively learning and teaching the language as a volunteer of Samskrita Bharati USA. He is passionate about creating computational tools for learning Sanskrit pronunciation.