**Unsupervised Acoustic Modeling for Spoken Language Applications**

Acoustic modeling is an important problem in many spoken language applications. It aims at providing compact yet accurate statistical representations for a set of sub-word units. Conventional acoustic modeling is a highly supervised process that requires plenty of speech data with transcriptions. Such resources may not be available for many languages and in many real-world situations. In this lecture, a new framework of unsupervised acoustic modeling is presented. Different types of posterior features are proposed as segment representations. Spectral clustering algorithms are applied to group short speech segments into phone-like units. The resulted acoustic models can be used in many spoken language applications, including spoken term detection, language recognition, and topic identification.

**Biography:**

Tan Lee is an Associate Professor at the Department of Electronic Engineering, the Chinese University of Hong Kong (CUHK). He has been working on speech and language related research since early 90s. His works cover many different areas, including automatic speech and speaker recognition, text-to-speech, speech enhancement, language identification, pathological speech analysis, hearing and speaking aids, and music signal processing. Tan Lee initiated and coordinated a number of pioneering projects on the research and development of Chinese spoken language technologies in Hong Kong. He led 8 projects funded by the General Research Funds (GRF) from the Hong Kong Research Grants Council (RGC). Tan Lee works closely with medical doctors, and speech and hearing professionals, in applying signal processing techniques to human communication disorder problems. He is the Director of the newly established Language and Communication Disorders Research Laboratory at CUHK Shenzhen Research Institute. Tan Lee was the Chairman of the IEEE Hong Kong Chapter of Signal Processing in 2005-2006. He is an associate editor of the EURASIP Journal on Advances in Signal Processing. Tan Lee received the CUHK Vice-Chancellor's Exemplary Teaching Award in 2004.