Keynote Speaker

Acoustic Signal Extraction Relying on Spatial Cues

Mitsunori Mizumachi^{a,*}

^aKyushu Institute of Technology, Japan

*Corresponding Author: mizumach@ecs.kyutech.ac.jp

Abstract

Sound delivers various information to us in the real world. Human ears can ingeniously extract a specific acoustic event from noisy observation. It is, however, a difficult task for machines with audio input interfaces. For example, speech recognition systems do not work well in adverse conditions such as noisy and reverberant environments, although they work perfectly under quiet environments. A wide variety of acoustic signal extraction methods have been proposed to achieve noise reduction, signal enhancement, sound source separation, and dereverberation. Both humans and machines utilize multiple acoustic cues in the temporal, spectral, and spatial domains for achieving acoustic signal extraction. Acoustic beamforming, that is, spatial filtering based on spatial cues, is one of the most practical techniques in audio applications for PCs, smartphones, tablets, and teleconference systems. In this talk, the acoustic beamforming technique is introduced in the viewpoints from the basic theory to the recent trends.