

Sound source direction estimation in horizontal plane using microphone array

Sound Source Localization refers to the ability to identify the location of a certain sound in direction and distance from a reference point. This paper introduces a sound source direction estimation system for an acoustical signal of interest in a 360° sweep in the horizontal plane. In this paper, an array of microphones is used as receivers for the sound waves which are recorded with prescribed blocks size of samples and interfaced to a PC for analysis using digital signal processing techniques. Spectral analysis and wavelet transform are applied on a reference microphone to test if a signal of interest has been received. If so, further processing for signals received on all microphones is initiated to estimate the sound source direction.