ADAPTIVE MICROPHONE ARRAY BASED ON MAXIMUM LIKELIHOOD CRITERION (WedPmOR7)

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Abstract :

The Minimum Variance (MV) criterion is widely used for weight vector estimation of the adaptive microphone array (AMA). The drawback of this criterion is the cancellation of the desired speech signal and its degradation when the microphone array is in a room with reverberation. Applying the Maximum Likelihood (ML) instead of MV criterion has two benefits. The first is the cancellation of interference and the second is the desired speech enhancement. Applying the ML criterion calls for the estimation of the signal and the interference covariance matrices. Both matrices can be estimated from the available microphone signals using the pause detection algorithm based on signal to noise ratio. The proposed speech enhancement algorithm was evaluated by simulating a room with reverberation. Experiments showed the superiority of this algorithm compared to MV based algorithms.

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