

论文

基于近场波束形成的麦克风阵列语音增强方法

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摘要

当麦克风阵列用于封闭环境中非手持式语音拾取时, 必须面对的一个问题是声场为阵列近场的问题。该文在子带自适应波束形成方法的基础上, 引进了一种基于近场波束形成的麦克风阵列语音增强方法。该方法充分利用了近场球面波的波前弯曲率, 有效地衰减了混响和噪声对期望信号的影响。仿真实验结果表明, 在小房间混响条件下, 基于近场波束形成的麦克风阵列语音增强方法取得了较好的噪声抑制效果。

关键词 [麦克风阵列](#) [语音增强](#) [近场波束形成](#)

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A Nearfield Beamforming Method for Microphone Array Based on Speech Enhancement

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Abstract

When using a microphone array for hands-free speech acquisition in enclosure environments, one can be faced with the problem of wave propagation in near-field. In this paper, therefore, a near-field beamforming method for microphone array based speech enhancement is introduced which modified subband adaptive beamforming method. The proposed method takes full advantage of spherical nature of the sound wavefront, in which the distance discrimination reduces the effect of reverberation as well as noise on the desired speech signal. Simulations experimental results demonstrate that the proposed microphone array based speech enhancement method exhibits a better noise reduction performance than other methods.

Key words [Microphone array](#) [Speech enhancement](#) [Near-field beamforming](#)

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