Abstract

In traditional denoising techniques, filters and Short time Fourier transform are not so good for speech signal denoising. Wavelet thresholding de-noising techniques provide a new way to reduce background noise in speech signal. However, the soft thresholding is best in reducing noise but worst in preserving edges, and hard thresholding is best in preserving edges but worst in de-noising. In this paper, the wavelet coefficients are reduced to zero smoothly according to the function when their absolute values are less than threshold value. Adding a factor to the function can change the form of threshold function and adjust the estimated deviation of wavelet coefficients. Number of Wavelet thresholding techniques has been applied on speech signal and its performance is evaluated. An wavelet threshold method is improved for signal denoising which gives better results in terms of SNR, MSE, Spectrogram & PRD particularly when a signal is corrupted with flicker noise. The simulation results show that the improved Wavelet thresholding method has superior features as compared to conventional methods.

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Index Terms

Computer Science

Signal Processing

Keywords

Short term Fourier Transform (STFT)  Spectrogram  Signal to Noise Ratio (SNR)
Percentage Root mean square difference (PRD)