Traditional psychoacoustic model and daubechies wavelets for enhanced speech coder performance

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Abstrak

Speech compression techniques based on traditional psychoacoustic model have been proposed by many researchers. We have suggested Discrete Wavelet Transform (DWT) supported by the same psychoacoustic model for speech compression. This paper presents a traditional psychoacoustic model to process equal partitions of total bandwidth spectrum of audio signal frequency to reduce redundancy by filtering out the tones and noise masker in speech signal. Here, the uniform filter banks are used for efficient computations and selection of appropriate threshold level for better compression of Discrete Wavelet Transformed coefficients. Daubechies wavelet filter bank is a nonlinear and asymmetric wavelet filter bank. It is equivalent to cochlear filter of human hearing system. The resemblance between Daubechies Filter Bank and our hearing system is used to develop the novel speech coder. Results have shown better performance in terms of compression factor (CF) and Signal-to-Noise Ratio (SNR) as compare to the methods suggested earlier.