Blind digital speech watermarking based on Eigen-value quantization in DWT

ABSTRACT

This paper presents a new blind digital speech watermarking technique based on Eigen-value quantization in Discrete Wavelet Transform. Initially, each frame of the digital speech was transformed into the wavelet domain by applying Discrete Wavelet Transform. Then, the Eigen-value of Approximation Coefficients was computed by using Singular Value Decomposition. Finally, the watermark bits were embedded by quantization of the Eigen-value. The experimental results show that this watermarking technique is robust against different attacks such as filtering, additive noise, resampling, and cropping. Applying new robust transforms, adaptive quantization steps and synchronization techniques can be the future trends in this field.

Keyword: Blind digital speech watermarking; Eigen-value; Discrete wavelet transform; Singular value decomposition