

ROBUST AUDIO WATERMARKING USING DISCRETE WAVELET AND DISCRETE COSINE TRANSFORMS

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ABSTRACT

Audio watermarking hides copyright information into the digital audio signal. Embedded data not only must be imperceptible but also should resist attacks and other types of distortions trying to remove or neutralize the watermark picture. This paper presents a novel audio watermarking scheme. This algorithm, divides the digital audio signal into 2-section segments. Then, for each segment, the first section passes through a DWT block and meanwhile the second is processed by a DWT followed by a DCT block. While the algorithm hides the synchronization bits into the DWT coefficients of the first section it embeds the watermark bits into the DCT coefficients. Unlike other methods, the proposed approach uses a 4-point quantization technique for embedding the bits. Simulations show that while the noise introduced by the new scheme to the audio signal is imperceptible, the watermarked audio signal is more robust against attacks compared to other methods.

KEYWORDS: DCT, DWT, IMPERCEPTIBILITY, ROBUSTNESS, SNR