ENHANCING THE ROBUSTNESS OF AUDIO WATERMARKING TECHNIQUE USING HISTOGRAM BASED ALGORITHM

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ABSTRACT

Broadband communication networks and multimedia data available in a digital format is having many challenges and opportunities for innovation. Flexible software which is simple to use and decreasing prices of digital devices have made it possible for clients from all around the world to create and exchange multimedia data. To increase the robustness of digital audio watermarking against desynchronization attacks such as TSM (Time-Scale Modification) operations is still an important issue. In this paper, it is observed that the histogram shape and the audio mean are two robust features to the TSM attacks. Accordingly, a multi-bit robust audio watermarking algorithm is proposed by modifying the histogram. The audio histogram with equal sized bins is extracted from a selected amplitude range referred to the audio mean, and then the relative relations in the number of samples among groups of three neighbouring bins are designed to carry the watermark by reassigning the number of samples in the bins. The watermarked audio signal is obviously similar to the original one.

KEYWORDS: Audio Watermarking, Histogram, Synchronization, TSM