ABSTRACT

Watermarking takes part as a way to protect copyright. In order to embed that watermark, researchers have used many techniques, some of them are Stationary Wavelet Transform (SWT) and Histogram. In this paper, we are combining SWT and Histogram method for embedding the watermark into host audio in order to obtain good robustness and audio watermarking quality. Compressive Sampling (CS) will also apply into the audio watermarking as a method to compress the watermark followed by synchronization process before embedding process is executed. First, the host audio is segmented into frames with same samples size. Then, SWT process is executed. Next, a sub-band is selected followed by Histogram technique to embed the watermark. The result of our experiments are: value BER after optimation is 0.15421975, smaller than BER value before doing optimation which is 0.17070435. Audios robustness are good towards Time Scale Modification and Delay attacks. In addition, piano.wav, bass.wav and jazz.wav are also good in MP3, AAC and MP4 compression. The best SNR we got at bass.wav with 40.8147 dB and average of ODG value is -1.932128.

Keyword: audio watermarking, Compressive Sampling, Histogram, Synchronization, Stationary Wavelet Transform