

ABSTRACT

Currently illegal copyright and illegal sale of multimedia data are increasingly prevalent. Digital watermarking is one of the solutions to protect the copyrights of multimedia data, so as to prevent the abuse of copyright and illegal sale. Audio watermarking is one of the implementations of digital watermarking, where the form of audio data will be inserted a watermark containing the logo or identity of the owner of the audio.

In this final project will do an analysis of the performance of audio watermarking-based stereo using Lifting Wavelet Transform (LWT), Discrete Cosine Transform (DCT), the Singular Value Decomposition (SVD). Then the addition of the bit will do synchronization, and at the watermark will do the process of Compressive Sampling (CS). LWT method is a technique for changing the domain to time domain Sparse with the objective of selecting the right frequency to be used on the process of Discrete Cosine Transform. DCT method works by converting a signal information from the frequency domain to time domain. SVD method is a technique to decompose matrix and get the result of matrix data extraction that ready to inserted watermark. The addition of synchronization bits is done to get the bits corresponding to the watermark, while the Compressive Sampling is done during the embedding process.

The results of this study obtained the average value of BER before optimization = 0.4 and after optimization = 0.2. In the host.wav audio, piano.wav, guitar.wav and bass.wav have performance resistant to LPF, BPF, Resampling, and Linear Speed Change attacks, but have less good SNR and ODG after optimization. The best SNR value after optimization is obtained by bass.wav audio is SNR value of 27.7279 dB and the average value of ODG generated after the optimization of -3.

Keywords: Audio Watermarking, Lifting Wavelet Transform, Compressive Sampling, Discrete Cosine Transform, Singular Value Decomposition