

ABSTRACT

Steganography is an ancient art of conveying message in a secret way that only the receiver knows the existence of message. Fundamental requirement for a steganography method is imperceptibility this means that the embedded messages should not be discernible to the human sense and the second one is high data rate of cover file.

Least Significant Bit (LSB) coding is one of the earliest techniques studied in information hiding of digital audio. It is a simple approach in hiding message in audio sequence, where the embedding of message into a digital audio stream is performed by alternation of LSBs, having 16 bits per sample. It usually does not use any psychoacoustics model to perceptually weight of noise introduced by LSB replacement.

In this final project will present a new high bit rate LSB audio steganography method using Minimum Error Replacement (MER) and Error Diffusion algorithm. The basic idea of the proposed LSB algorithm is embedding message that causes minimal embedding distortion of the host audio. The proposed technique uses a three-step algorithm. In the first step message bits are embedded into higher LSB layers using a standard method, resulting in increased robustness against noise addition or signal modification. The second step is searching for the level of audio closest to the original audio level using MER algorithm. The third step is to decrease perceptual noise artifacts using Error Diffusion algorithm.

From objective tests using Mean Absolute Error (MAE), Mean Square Error (MSE) and Signal to Noise Ratio (SNR) measurements and subjective tests using Mean Opinion Score (MOS) and discrimination showed that the perceptual quality of the stego-object is higher in the case of the proposed method using MER and Error Diffusion Algorithm than in the standard LSB method.