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Krunal N. Patel

Robust and Secured Digital Audio Watermarking

Using a DWT-SVD-DSSS Hybrid Approach

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Preface

Today, the use of digital data like image, audio, and video is tremendously increasing due to the advancement in technology and the Internet revolution. With these advancements, attaining one's ownership and copyrights for this digital data is the biggest challenge. Digital watermarking is one of the technique to attain one's ownership and copyrights securely. It is the technique in which the owner's copyright information can be embedded into the original media in the form of an image, audio, text, or video. There are two main factors we need to observe for digital audio watermarking to maintain the robustness as well as imperceptibility against piracy, malicious attacks, and various transformation operations. Though there are many challenges to achieve these results, there are two approaches presented for audio watermarking that are used to improve the robustness, and imperceptibility of the embedded information with security. To provide the security, DSSS Encryption and Decryption algorithm is used which is based on synchronized secret key concept along with DWT, DFT and SVD transformation methods. DWT (Discrete Wavelet Transformation) is used up to the fourth level to get the lowest frequency sub-band and after that DFT is applied to get the lowest frequency from the sub-band found by DWT in which the modifications are done, and then SVD (Singular Value Decomposition) is applied to it, so that the original audio file does not have any impact of the watermark bits to get the better robustness and imperceptibility.

Bakrol, India

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