Journal of Theoretical and Applied Information Technology
29th February 2024. Vol.102. No 4

ISSN: 1992-8645 www.jatit.org E-ISSN: 1817-3195

SYSTEMATIC REVIEW AND SIMULATIVE COMPARISON OF VIDEO WATERMARKING SCHEMES

HAWEEZ SHOWKAT [1], ROHUN NISA[2],Dr. ASIFA BABA[3]
[1,2,3] Islamic University Of Science and Technology, J&K, India
E-mail: haweezsk@gmail.com [1], rohunnisa@islamicuniversity.edu.in [2], asifababa@gmail.com [3]

ABSTRACT

These days, one of the most sought-after data security study areas is watermarking. Innumerable techniques have been developed to achieve better results in terms of robustness and perceptual quality which are generally in a tradeoff mode. In order to get insight into current trends in the watermarking area, a non-exhaustive assessment of research publications was done in order to weigh the advantages and disadvantages of each one. This paper's primary contribution is a comparison of simulation results for video watermarking using SVD, DWT-SVD, LWT-SVD, RWDT-SVD, and SVD-APDBCT, which provides an understanding of different assessment parameters. Watermarked videos with various noise attack variations have been subjected to simulations, and comparison analysis for fidelity and resilience in terms of PSNR and CC is obtained.
Keywords: *SVD ,DWT,RDWT,LWT,APDBCT* .

1. INTRODUCTION

In the present scenario of high technology where new methods of information broadcasting and communication have come into existence, it's a challenge to secure the information transferred through an open communication channel. Along with the new ways of communication, new techniques of modification of data due to which spreading rumors and wrong information has become a norm. Illegally downloading videos has become a big problem for copyright owners, as high speed internet has aided the process. Watermarking came as a solution to these problems, where an invisible information is embedded in the frames of video, which can be extracted by the owner at the time of extraction so as to authenticate the ownership disputes. The watermark can be extracted on the receiver side only by the dedicated detector so as to uphold the rights of IPR (intellectual property rights) holders. The main aim of this paper is to analyze some basic watermarking techniques which will give researchers an insight of which scheme has advantage over the other.

1.1 Watermarking schemes should have the following attributes.

a) Robustness: It gauges the watermarking scheme's potential to become redundant in the face of both deliberate and unintentional attacks. Once the watermark has been removed, it ought to be able to verify the intellectual property rights holders' ownership.

b) Perceptual quality: The degree of distortion a watermark adds to the cover signal is another name for it. In this day and age of HD TVs, we cannot afford to compromise on visual quality any longer. Consequently, the watermark must to be as subtle as possible in terms of fidelity to maintain the video's commercial worth.

c) Time consumption: Increasing complexity in video watermarking directly extends processing time, posing a challenge for real-time applications like live videos. High time consumption compromises the feasibility of timely watermarking, essential for seamless integration in dynamic scenarios.

d) Data Pay load: Capacity, in the context of watermarking, gauges the information storage potential within a cover signal. It quantifies the bits of the watermark embedded in the image, aiming for sufficiency to convey the uniqueness of the extracted watermark. The optimal balance ensures effective representation and retrieval of the embedded information.

e) Trustworthiness: Certainly, the primary objective of watermarking is to establish ownership verification for the authorized party. The underlying scheme must guarantee that unauthorized entities are unable to generate counterfeit watermarks during the extract