

Hybrid Video Watermarking Based on LWT, SVD and SWT Using Fused Images for Data Security



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Abstract We propose a new scheme to protect IPR of owners and stop illegal modification and distribution of videos. We propose embedding of a fused watermark into videos to solve ownership disputes. The embedding watermark is an image that consists of two watermarks fused using SWT, so as to make the system more secure. Embedding and extraction are done using LWT and SVD. Experimental outcomes show that the extracted watermarks are stout against various noise attacks and are evaluated using correlation coefficient. The PSNR is also calculated to evaluate the perceptual video quality.

Keywords Lifting wavelet transform · Stationary wavelet transform · Singular-valued decomposition · Digital video watermarking

1 Introduction

The huge advancements made in the field of multimedia communication have completely changed the scenario of transactions and perceptions, which has in turn led to untoward apprehensions regarding the information shared and received [1–19]. It is very convenient to replicate any content, modify it with perfection and then redistribute it without any objection. Due to these apprehensions, digital watermark came into existence. Watermark helps in the authentication of information received, whether it is a text, audio, image or video. In the process of watermarking, the exclusive information is embedded in the information to be sent. This watermark can then be extracted on the receiver side only by detector [4] to prove its ownership.

The watermarking should have certain properties [1–19]:

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