Comparative Performance Analysis of Secured LWT-SVD Based Color Image Watermarking Technique in YUV, YIQ and YCbCr Color Spaces

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Abstract

In this paper the perceptual quality and robustness in LWT domain and DWT domain is evaluated for the gray-scale image. The proposed technique is based on Lifting Wavelet Transform and Discrete Wavelet Transform (LWT-SVD) domain for embedding the gray-scale image to the color host image. Fibonacci-Lucas Transform is used to scramble the watermark image for security reason. YUV, YIQ and YCbCr color spaces are evaluated by implementing this secured robust algorithm. Y, U, V, I, Q, Cb and Cr channels are examined for the perceptual quality and robustness. Maximum recorded PSNR for V channel is 90.6039 and up to 65.5971 for Y channel in YCbCr color space. Maximum NC is recorded in Y channel for all the color spaces. Applied various attacks like Average filter, Gaussian filter, Gaussian Noise, Salt & pepper noise, Blur, Motion Blur, Crop, JPEG Compress, Rotate, etc. to the proposed technique to test all the channels of the different color spaces.

References

**Index Terms**

Computer Science  
Image Processing

**Keywords**