

A Novel Hybrid Digital Watermarking using DWT, DCT and SVD

Harshita Dudhe

*M. Tech. Scholar, Electronics and
Communication Engineering Department
Acropolis Institute of Technology & Research,
Indore (M.P.), India
harshi123.2008@gmail.com*

Ankit Jain

*Asst. Prof., Electronics and Communication
Engineering Department
Acropolis Institute of Technology & Research,
Indore (M.P.), India
ankitjain@acropolis.in*

Abstract— This paper aims at developing a hybrid image watermarking algorithm which satisfies both imperceptibility and robustness requirements. In order to achieve our objectives we have used singular values of Wavelet Transformation's sub bands to embed watermark. Further to increase and control the strength of the watermark, we use a scale factor. An optimal watermark embedding method is developed to achieve minimum watermarking distortion. An original image based recovery block's designed to securely embed the fragile watermarks so that the new method is robust to counterfeiting, even when the malicious attackers are fully aware of the watermark embedding algorithm. Experimental results are provided in terms of Peak signal to noise ratio (PSNR), Mean Squared Error (MSE), Weighted Peak signal to noise ratio (WPSNR) and correlation to demonstrate the effectiveness of the proposed algorithm. Results are taken by simulating the DWT, DCT and SVD watermarking techniques, in order make a good comparison model. Image operations such as JPEG compression from malicious image attacks; salt & pepper, Gaussian noise, sharpening, contrast enhancement, rotation and de-blurring.

Keywords— Correlation, DCT, DWT, MSE, PSNR Watermarking, SVD, Wavelet transform.