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# Reference based Semi Blind Image Watermarking Scheme in Wavelet Domain

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## Abstract

To protect digital contents from unauthorized users, singular value decomposition has been used to propose various watermarking techniques for digital images. Most of these techniques have used singular values of the cover image to embed the watermark. All such techniques result in the false positive detection problem. In order to overcome this problem, a semi blind watermarking scheme has been proposed. In this scheme, singular values of the wavelet coefficients of selected subbands of the cover image are utilized to create reference image instead of embedding the watermark. Embedding of the watermark is performed by means of reference image and scaling factor. Prior to embedding the watermark, Artificial Bee Colony algorithm is employed to optimize the scaling factor so that the proposed scheme accomplishes perceptual transparency and robustness. Experimental results exhibit that the proposed scheme provides worthy visual quality of the watermarked images. Moreover, it is robust against various image processing attacks because recognizable watermark is extracted from distorted images. This scheme has been compared with the existing techniques and it is found that quality of the extracted watermark is enhanced.

**Keywords:** DWT, DCT,SVD, PSNR, SF, Semi Blind, SIM,Correlation .

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