Image Watermarking based on Integer Wavelet TransformSingular Value Decomposition and Variance Pixels

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ABSTRACT:
With the era of rapid technology in multimedia, the copyright protection is very important to preserve an ownership from multimedia distribution. This paper proposes an image watermarking scheme based on integer wavelet transform and singular value decomposition. Embedding watermark locations are determined by using variance pixels. Selected blocks with the lowest variance values are transformed by Integer Wavelet Transform (IWT) and the LL sub-band of 8×8 transform domain is computed using singular value decomposition. The orthogonal U matrix component of U3,1 and U4,1 are modified using certain rules with considering watermark bits and an optimal threshold. This research reveals the optimal threshold value based on the trade-off between robustness and imperceptibility of watermarked image. The binary watermark is scrambled by Arnold transform before embedding watermark. In order to measure the watermarking performance, the proposed scheme is tested under various attacks. The experimental result indicates that our scheme achieves higher robustness than other scheme under different types of attack

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