

Abstract

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An adaptive dual digital image watermarking technique with application to color images

A novel adaptive dual image watermarking technique is suggested and tested. The technique embeds a PN sequence which is the primary watermark into an image (a secondary watermark) and the resulting image is then embedded in the host image. The technique is implemented in the wavelet domain and the embedding factor alpha is first chosen arbitrary so as to improve the invisibility and robustness and then chosen adaptively depending on the energy content of the image to be watermarked in order to improve the performance. The technique is implemented on several gray scale images and then on several color images. The best achieved peak signal to noise ratio (PSNR) in case of gray scale images reached 68.8432 db whereas in color images it was 54.8750 db.