Abstract

Ownership authentication and copyright protection of image has achieved a sharp attention due to easy and global availability of internet services. Illegal copying and misappropriation of digital image leads cyber crime in an epidemic form. Invisible watermarking technique is one of the leading solutions towards violation of ownership authentication problem without deteriorating the quality of the image. In spatial domain watermarking, a counterfeiter may not retrieve the watermark from watermarked image but the watermark can be destroyed if JPEG compression is performed on the watermarked image even at a very low level of compression and this is a very popular and easy way indeed for violating authentication of ownership. In this article a DCT based image watermarking framework is proposed to enhance the robustness of the watermark in the watermarked image against high level lossy JPEG compression. Several proposed watermark frameworks in last few years have considered binary watermarks and watermark pixels are directly embedded at the DCT coefficients of host images. Whereas in our proposed framework we have used color host images and grayscale watermarks and DCT is performed on both the host image and watermark image. Watermark frequencies are embedded in the DCT coefficients of several blocks of the host image. A secret key is used that
determines the embedding blocks of the host image. Experimental result sets demonstrate that our proposed framework ensures the quality of watermarked image, perceptual invisibility of watermark in human visual system, robustness of watermark against high JPEG compression.

References

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Index Terms

Computer Science

Image Processing

Keywords

Ownership, authentication, invisible watermarking, DCT, JPEG compression