A Hybrid Digital Watermarking Scheme

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Abstract : Digital watermarking is a technique that allows an individual to add and hide secret information, copyright notice, or other verification message inside a digital audio, video, or image. Today, with the advancement of technology, modern healthcare systems manage patients' diagnostic information in a digital way in many countries. When transmitted between hospitals through the internet, the medical data becomes vulnerable to attacks and requires security and confidentiality. Digital watermarking techniques are used in order to ensure the authenticity, security and management of medical images and related information. This paper proposes a watermarking technique that embeds a watermark in medical images imperceptibly and securely. In this work, digital watermarking on medical images is carried out using the Least Significant Bit (LSB) with the Discrete Cosine Transform (DCT). The proposed methods of embedding and extraction of a watermark in a watermarked image are performed in the frequency domain using LSB by XOR operation. The quality of the watermarked medical image is measured by the Peak signal-to-noise ratio (PSNR). It was observed that the watermarked medical image obtained performing XOR operation between DCT and LSB survived compression attack having a PSNR up to 38.98.

Keywords : watermarking, image processing, DCT, LSB, PSNR
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