

Two Levels of Security for Protection of Images Copyright

Abstract

Due to illegal manipulation and image processing attacks, digital image copyright protection is receiving a significant research attention. This paper has introduced a blind invisible watermarking method to protect the copyright of digital color images. This method is based on the combination of digital transforms (DWT, DCT) in the frequency domain. The embedding process involved in this method is based on partitioning the host image into 16×16 non-overlap blocks, and the chaotic maps are used to generate random numbers in order to choose the appropriate blocks for the inclusion process involved in the purpose of increasing the security of proposed system. As for the extraction process, it is carried out in a way that does not require the presence of original image but rather follows the same embedding protocol to extract the embedded and encrypted watermark. To raise the security level, a hybrid encryption method has been proposed by using the chaotic map and DNA coding for encrypting the watermark before embedding it. Experimental results evident the good imperceptibility. In addition, the proposed method effectively resists common "image processing attacks."