Abstract

To achieve the copyright protection in digital images, watermarking is identified as a major technology to protect digital images from illegal manipulation and geometric distortions. In this paper we discuss a digital image watermarking algorithm based on Discrete Wavelet Transform – Discrete Cosine Transform – Singular Value Decomposition (DWT-DCT-SVD). Here in this paper we examined and compared various wavelet families such as Haar, Daubechies, Biorthogonal and Coiflets for the watermarking algorithm. The difference in this method, from other traditional methods is that the watermark is embedded in high frequency band. Traditionally it is assumed that for having good robustness, a watermark should be embedded in low or mid frequency. DWT provides scalability, DCT provides compression and SVD offers minimum or no distortion. Choice of wavelets depends on the choice of wavelet function as DWT can be composed of any function that satisfies requirements of multiresolution analysis. In each of these wavelet families we analyzed effects of wavelets on image quality. The simulation results show good performance with respect to robustness against various image processing operations.
- S S Bedi, Ashwani Kumar, and Piyush Kapoor, "Robust Secure SVD Based DCT – DWT Oriented Watermarking Technique for Image Authentication," in International Conference on IT, March 2009, Thailand
- J. Xiao, Y. Wang, "Towards a better understanding of DCT coefficients in watermarking," in Pacific-Asia Workshop on Computational Intelligence and Industrial Application (PACIIA &apos;08), vol. 2, Wuhan, December 2008, pp. 206-209.
- Ben Wang; Jinkou Ding; Qiaoyan Wen; Xin Liao; Cuixiang Liu, An image watermarking algorithm based on DWT-DCT and SVD IEEE10. 1109/ICNIDC. 2009. 5360866

Index Terms

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Keywords

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