Abstract

In this paper, we present a novel algorithm for watermarking a grayscale digital image with a binary watermark in the DCT domain. The algorithm is transparent since the watermark is not
really embedded in the host image. This results in zero distortion of the watermarked host image. The embedded watermark is robust to most common unintentional attacks by intelligently utilizing the signs of the DC components of the DCT-transformed host image blocks. The algorithm is blind since only the secret keys are required for watermark extraction. These secret keys are in the form of two shares. One of the shares is registered to the Certified Authority (CA) for additional security and protection against intentional attacks. The size of each share is much smaller than that of other techniques in the literature and the shares are generated faster. The algorithm is practical due to its very fast speed of both watermark embedding and extraction. The paper also proposes an extended version of Torus Automorphism (TA) permutation for scrambling the watermark before embedding and to reassemble it after extraction for additional security against intentional attacks.

Reference

- Naderahmadian, Y. and Hosseini-Khayat, S. 2010. Fast Watermarking Based on QR


Index Terms

Computer Science
Security

Key words

Digital image watermarking
Torus Automorphism permutation
A Fast, Blind, Transparent, and Robust Image Watermarking Algorithm with Extended Torus Automorphisms