Abstract

In this paper, a digital image watermarking technique combining Discrete Wavelet Transform (DWT) and Discrete Fractional Fourier Transform (DFRFT) has been investigated. This is a non-blind watermarking technique that exploits multi-resolution sub-band decomposition property of DWT and applies DFRFT on selected sub-bands in DWT-transformed image. The performance of this algorithm under various attacks is investigated and compared with DFRFT and DWT-based algorithms. The simulation results show that proposed watermarking technique offers better robustness to all attacks as compared to DWT-based scheme whereas either comparable or better than DFRFT-based technique for all attacks except median filtering, AWGN and JPEG compression attacks.

References


Digital Image Watermarking using Combined DWT and DFRFT


Index Terms

Computer Science

Image Processing

Keywords

Digital Image Watermarking  Discrete Wavelet Transform  Discrete Fractional Fourier Transform
Histogram Equalization

Sharpening