Abstract

Digital images are widely used in defense, e-governance, medicine, banking, insurance, healthcare, scientific research, weather forecasting etc. Varied applications in these fields demand the secure exchange of digital images that serve as valid document evidences for legal procedures and for clinical, scientific and forensic analysis. These images are susceptible to intentional or accidental attacks during transit which may lead to the loss of confidentiality and
Reversible Blind HF Domain Contourlet Watermarking for Authentication of Digital Images

integrity of the content and identity of the sender. This paper presents a reversible blind watermarking scheme for authentication of digital images with a binary logo. It exploits the contourlet domain for watermarking as it preserves the smooth contours and edges even after multiple levels of decomposition. The proposed watermarking algorithm embeds the watermark in an arbitrary sparse High Frequency (HF) subband; the watermark extraction algorithm follows a unique hard thresholding approach for blind watermark extraction. The system applies a triangular number generating function to strengthen the binary watermark and employs Arnold transform for watermark synchronization. Experimental results show that the proposed system provides good fidelity of watermarked and recovered images and robustness to certain geometrical and non geometrical attacks.

Reference

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Index Terms

Computer Science Security

Key terms

Authentication blind watermarking reversible
watermarking triangular number Arnold transform