

A new histogram modification based reversible data hiding algorithm considering the human visual system

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Abstract: In this letter, we propose an improved histogram modification based reversible data hiding technique. In the proposed algorithm, unlike the conventional reversible techniques, a data embedding level is adaptively adjusted for each pixel with a consideration of the human visual system (HVS) characteristics. To this end, an edge and the just noticeable difference (JND) values are estimated for every pixel, and the estimated values are used to determine the embedding level. This pixel level adjustment can effectively reduce the distortion caused by data embedding. The experimental results and performance comparison with other reversible data hiding algorithms are presented to demonstrate the validity of the proposed algorithm.

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Author Keywords: Data hiding; human visual system; just noticeable difference; lossless watermarking

Index Keywords: Data embedding; Data hiding; Histogram modification; Human Visual System; Human visual systems; Just-noticeable difference; Lossless watermarking; Performance comparison; Pixel level; Reversible data hiding; Graphic methods; Image processing; Pixels; Steganography; Algorithms

Year: 2011

Source title: IEEE Signal Processing Letters

Volume: 18

Issue: 2

Art. No.: 5648443

Page : 95-98

Link: [Scopus Link](#)

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ISSN: 10709908

CODEN: ISPLE

DOI: 10.1109/LSP.2010.2095498

Language of Original Document: English

Abbreviated Source Title: IEEE Signal Processing Letters

Document Type: Article

Source: Scopus

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