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基于非抽样Contourlet变换的高定位精度认证水印算法

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摘要:

本文提出了一种基于非抽样Contourlet变换的高定位精度图像自适应认证水印算法。对原始图像进行非抽样Contourlet变换, 选取低频子图分块后进行奇异值分解, 通过自适应量化修改奇异值嵌入经混沌置乱后的二值水印信息。整个分解过程没有任何抽样环节, 各尺度下各方向子带均与原始图像具有相同的尺寸, 从而提高了篡改定位的精度, 增加了水印的嵌入量。水印的提取只需要由混沌初值和量化参数构成的密钥, 保证了算法的安全性。同时该水印算法对JPEG压缩稳健, 对恶意操作敏感。

关键词: 水印 认证 非抽样Contourlet变换 奇异值分解

A nonsubsamped contourlet transform based adaptive watermarking algorithm for image authentication

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Abstract:

We present a semi fragile nonsubsamped contourlet transform (NSCT) based watermarking algorithm for image authentication. We embed watermark in the singular values (SVs) of the blocks within low frequency subbands of NSCT by an adaptive quantization method. Watermark extraction is available only with a key constructed by chaotic signal initial value and quantization parameters. Subbands of individual scale and individual direction all have the same size as those of the original image. This algorithm can improve the tampering localization capability without causing remarkable man made trace. Experimental results show that this algorithm is robust to JPEG compression but extremely sensitive to malicious operations.

Keywords: watermark authentication nonsubsamped contourlet transform single value decomposition

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1. 冯安, 金辉, 王素华.一种DCT域文档图像鲁棒性水印算法[J]. 山东科学, 2010,23(2): 54-57

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