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论文

抗亮度和对比度调整的盲鲁棒量化水印算法

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摘要:

针对现有许多图像水印算法无法抵抗亮度和对比度调整,提出了一种抗亮度和对比度调整的盲鲁棒量化水印算法.对原始图像进行离散小波变换,将低频子带分成互不重叠的子块,对每个子块进行离散余弦变换,在每个子块的离散余弦变换低频系数奇偶量化嵌入水印.检测端先对攻击后的含水印图像进行抗亮度和对比度调整修正,然后通过奇偶判断盲提取出水印.实验结果表明:该算法在抵抗亮度和对比度调整上表现出较强的鲁棒性,而且在抵抗添加高斯噪音、添加椒盐噪音、剪切、中值滤波、高斯低通滤波和JPEG压缩也表现出较强的鲁棒性.

关键词: 数字水印 量化 鲁棒性 亮度和对比度调整

A Blind Robust Quantization-based Watermarking Algorithm Against Brightness-and-contrast Adjustment

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Abstract:

Lots of existing image watermarking algorithm cannot resist brightness-and-contrast adjustment.In order to solve the problem,a blind robust quantization-based watermarking algorithm against brightness-and-contrast adjustment is proposed.An original image is transformed with discreet wavelet transform,and its low frequency band is split into non-overlapping blocks.Then,each block is conducted with discreet cosine transform.Finally,a watermark is inserted into low frequency coefficient from each block after discreet cosine transform through odd-even quantization.At the detection end,revision for resistance against brightness-and-contrast adjustment is imposed on the attacked watermarked image at first,and then a watermark is blindly extracted through odd-even judgment.Experimental results show that it has strong robustness towards brightness-and-contrast adjustment,and adding gaussian noise,adding salt&pepper noise,cropping,median filter,gaussian low-pass filter and JPEG compression.

Keywords: Digital watermarking Quantization Robustness Brightness-and-contrast adjustment

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