

论文

## 基于色调处理技术的图像认证算法

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收稿日期 2003-1-4 修回日期 2003-6-3 网络版发布日期 2008-5-16 接受日期

摘要

基于色调处理技术, 该文给出了一种有效可行且具有自修复能力的图像认证算法。首先, 基于误差扩散色调处理技术将水印图像4bit色调量化, 并依据混沌置乱算子, 将色调结果置乱, 然后构造平均误差最小的特征集合C, 最后依据误差扩散数据隐藏算法将置乱后水印图像隐藏于原始图像中; 在认证端, 从接收到的图像提取其中所隐藏水印信息并进行逆置乱, 比较接收到的图像和反置乱后的隐藏信息, 判断内容发生变化的位置, 并依据所提取的水印信息修复被篡改图像。实验结果表明, 该算法对删除、替换、篡改等破坏图像内容的恶意操作有精确的检测和定位, 以及自修复能力。

关键词 [图像认证](#) [图像过渡色调技术](#) [误差扩散](#) [自修复能力](#)

分类号 [TP391](#)

## Effective Image Authentication Algorithm Based on Image Halftone Technique

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Abstract

Based on the image halftone technique, a new effective image authentication algorithm is proposed with self repairing ability. First, the original image is quantized by 4 bit based O11 the error diffusion image halftone, and then the result is permuted by chaos operator, at the same time the halftone color set is constructed with the least quantization error. Next, the permuted image is hidden into the original image based on the error diffusion watermark algorithm. When the watermarked image is received, to verify the authenticity of the received image, the hidden information is extracted out from the received image and permuted inversely. If the received image is similar to the extracted information, the received image is creditable, else that is to say, there exists a local region that is dissimilarity, i.e. the region is tampered, according to corresponding region of extracted information, the tampered region is repaired. Finally, experimental result to demonstrate the effectiveness of the proposed image authentication technique is presented.

Key words [Image authentication](#) [Image halftone technique](#) [Error diffusion](#) [Self repairing ability](#)

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