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图形、图像、模式识别

基于SIFT和伪Zernike矩归一化的抗几何攻击水印

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摘要 提出一种基于SIFT和伪Zernike矩归一化的抗几何攻击水印方案。首先用SIFT方法提取载体图像的特征点，筛选得到关键点。然后在关键点确定载体图像的方形子区域嵌入水印。嵌入时计算方形子区域的伪Zernike矩值，并对矩值作归一化处理，选择部分低阶矩幅值抖动量化嵌入水印。为抵抗几何攻击，检测前进行基于SIF关键点的几何失真校正，对校正后的图像提取水印。实验结果表明该算法对旋转、剪切、JPEG、压缩、噪声、中值滤波等攻击有很好的鲁棒性。

关键词 数字水印 尺度不变特征变换（SIFT） 伪Zernike矩 矩的归一化

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Anti-geometric attacks image watermarking scheme based on SIFT and normalization of pseudo-Zernike moment

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Abstract

Present an anti-geometric attacks image watermarking scheme based on SIFT and normalization of pseudo-Zernike moment.Firstly，detect image feature points by SIFT and select some suitable ones to be keypoints.Second，determine square sub-regions of host image using keypoints.After computing these regions by pseudo-Zernike moments，normalizing the moments，and quantizing some low-lever moments，the digital watermark is embedded into the host image.To implement the geometric robustness，SIFT is used to detect the rotated angle and the scale that the image has undergone.And restore the image using parameters obtained.Experimental results show this scheme is robust against the rotation，shearing，JPEG，compression，noise and filtering attack.

Key words digtal watermark Scale Invariant Feature Transformation（SIFT） pseudo-Zernike moment normalized moment

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