

## 基于四叉树分割的JPEG隐写分析

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## JPEG Steganalysis Using Quad-tree Based Segmentation

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摘要

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**摘要** 当前主要的隐写分析方法都是对整幅图像进行特征提取,而忽略了图像的内容差异。该文提出一种基于四叉树分割的JPEG隐写分析方法,该方法根据图像块的纹理复杂度进行图像分割,对具有相同统计特性的子图像分别进行隐写检测特征的提取,并构造相应的分类器,通过加权融合得到最终的检测结果。实验结果表明该方法具有良好的性能,尤其是在训练与测试图像的统计特性具有较大差异时,该算法的检测准确率提高更加明显。

**关键词:** 信息隐藏 JPEG隐写分析 图像分割 四叉树 纹理复杂度

**Abstract:** The traditional image steganalysis methods are based on the features extracted from the whole image, while ignoring the differences of the image content. A new JPEG steganalysis algorithm using quad-treebased segmentation is proposed. First, the given images are segmented to sub-images according to the texture complexity. Then, then steganalysis features of each sort of sub-images with the same or close texture complexity are extracted separately to build a classifier. Finally, the steganalysis results of the whole image are obtained by weighted fusing of all the sub-image categories. Experimental results demonstrate that the proposed algorithm exhibits excellent performance and significantly improves the detection accuracy.

**Keywords:** Information hiding JPEG steganalysis Image segmentation Quad-tree Texture complexity

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