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## 论文

### 基于视觉注意的彩色图像检索方法

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#### 摘要:

基于视觉注意模型提取的特征能够反映图像高层语义的新特征,将视觉注意机制引入到图像分析领域能有效地减小语义鸿沟,获得高效的图像检索性能.根据视觉感知的特点,对Itti视觉注意模型进行了改进.采用主分量图表示亮度图,将纹理粗糙度信息融入视觉注意模型,进而提出了一种基于视觉注意空间分布特征的图像检索算法.首先由改进视觉注意模型将图像分解得到38个视觉特征图,然后采用网格平分法提取视觉特征图的空间分布信息,组成特征矢量来多层次地对图像特征进行描述,用于图像检索.实验结果表明,该算法利用基于改进注意力模型方法来提取图像空间分布特征进行图像检索,能获得较高的检索率.

**关键词:** 视觉注意 视觉特征图 特征抽取 图像检索

### A Method of Color Image Retrieval Based on Visual Attention Model

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#### Abstract:

The feature based on visual attention model is a new feature that can objectively interpret the high-level concepts. High retrieval efficiency will be achieved and the semantic gap in image retrieval can be also reduced effectively if visual attention mechanism is adopted. An improved Itti's visual attention model, inspired by human visual perception, is proposed. Primary component map is used to take place of intensity map, and the information of texture coarseness is brought in the improved Itti's model. A novel image retrieval algorithm is proposed based on visual attention distribution feature. Firstly, the image is divided into 38 feature maps by the improved Itti's visual attention model. Then, by the fixed four-by-four grid of subregions, the visual attention distribution feature to image retrieval is constructed according to statistical distribution of the 38 feature maps which contain most of the structural information of the image. The experimental results show that the proposed method has better retrieval performance.

**Keywords:** Visual attention model Visual feature map Feature extraction Image retrieval

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