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论文

基于空间特征的图像检索

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摘要：

提出一种新的基于空间特征的图像特征描述子SCH，利用基于颜色向量角和欧几里得距离的MCVAE算法共同检测原始彩色图像边缘，同时利用一种新的"最大最小分量颜色不变量模型"对原始图像量化，对边缘像素建立边缘相关矩阵；对非边缘像素使用颜色直方图描述局部颜色分布信息；然后，利用新的sin相似性度量法则衡量图像特征间的相似度。实验采用VC++6.0开发了基于内容的图像检索原型系统"SttImageRetrieval"，基于Oracle 9i数据库建立了一个综合型图像数据库"IMAGEDB"。实验分析结果证明，利用SCH描述子的检索准确度明显高于仅基于颜色统计特征的检索结果。

关键词： 基于内容的图像检索；空间特征；彩色图像边缘检测；颜色向量角

Image Retrieval based on Spatail Feature

Abstract:

A novel image feature descriptor SCH based on spatial feature was proposed. It used MCVAE algorithm based on the color vector angle and Euclid distance to detect original color image edge, and a new "greatest and smallest component color invariant model" to realize the original image quantization. Furthermore, for the edge pixels, the distribution of the color pairs at an edge was extracted by edge correlation matrix. Meanwhile, for the non-edge pixels, the local color distribution of pixels was extracted by color histogram. Then, a new sin similarity metric was used to measure the similarity between the image features. Finally a content-based image retrieval prototype system called "SttImageRetrieval" was developed with VC, with establishment of a comprehensive database of images called "IMAGEDB" using Oracle 9i database. Experimental results show that our algorithm outperforms the methods of color statistical feature for image indexing and retrieval.

Keywords: content-based image retrieval　spatail feature　color image edge detection　color vector angle

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