

图形、图像、模式识别

改进k-means算法在图像标注和检索中的应用

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摘要 提出一种基于改进的k-means算法的图像标注和检索方法。首先对训练图像进行分割, 采用改进的k-means算法对分割后的区域进行聚类。改进的k-means算法首先采用遗传聚类算法确定聚类数k, 然后对聚类中心进行选择。在图像标注时, 首先通过已标注的图像求出语义概念和聚类区域的关联度, 用它作为待标注图像的先验知识, 然后结合区域的低层特征, 对未标注的图像进行标注。在一个包含1 000幅图像的图像库进行实验, 采用标注的语义关键字进行检索, 结果表明, 提出的方法是有效的。

关键词 [图像分割](#) [遗传算法](#) [k-means算法](#) [图像标注](#) [图像检索](#)

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Application of improved k-means algorithm in image annotation and retrieval

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Abstract

A novel method of image annotation and retrieval based on improved k-means algorithm is proposed. First, image segmentation is applied to the training image; an improved k-means algorithm is proposed to cluster the segmented region. The improved k-means algorithm first uses the genetic clustering algorithm to determine the number of cluster k, and then chooses the clustering centers. At the time of image annotation, the correlation between image semantic concept and region cluster is established, and then it is used as a priori knowledge and is combined with the lower feature of the region to annotate the un-annotated image. The system has been tested on an image database of about 1 000 images. The experiment results show that the proposed approach has a good retrieval performance.

Key words [image segmentation](#) [genetic algorithm](#) [k-means algorithm](#) [image annotation](#) [image retrieval](#)

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