基于测地线活动区域模型的非监督式纹理分割

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Abstract

This paper proposes an algorithm based on curve evolution for unsupervised texture segmentation. A multidimensional feature space is achieved by using a Gabor filter bank to extract texture features. To avoid deforming contours directly in a vector-valued space, a Gaussian mixture model (GMM) is used to describe the statistical distribution of the space and get the boundary and region probabilities. Then a framework of geodesic active regions is applied based on them to get final results. In the end, the experimental results demonstrate that this method can obtain satisfied boundaries between different texture regions.

摘要
提出了一种基于曲线演化的非监督式纹理分割算法.在用Gabor小波库提取纹理特征之后,可以得到一个多维的特征图像.为了避免直接在多维空间中应用曲线演化模型,采用高斯混合模型(Gaussian mixture model,简称GMM)来描述该特征图像的概率分布,再从分布模型中计算得到每个像素点的区域信息和边界信息.综合两种信息,并应用测地线活动区域模型来获得最终分割结果.实验结果显示,这种方法能够获得良好的区域边界.

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