

图形、图像、模式识别

湿地遥感图像分割算法设计及实现

石月珍¹, 辛动军²

1.长沙理工大学 水利工程学院, 长沙 410076

2.中南林业科技大学 计算机科学学院, 长沙 410004

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摘要 提出了一种结合熵和模糊C均值的聚类分割方法。模糊C均值(FCM)聚类算法广泛用于图像的自动分割,但是传统的FCM算法没有考虑像素的空间信息,因而对噪声十分敏感,基于二维直方图的模糊C均值聚类算法除了考虑像素点的灰度信息外还考虑了像素点邻域的空间信息,可有效地抑制噪声;在目标函数中引入熵项则能更好地抑制噪声和外围点对类中心估计的影响。实验分析结果表明,算法对湿地遥感图像的分割效果优于FCM算法。

关键词 [模糊C均值聚类](#) [二维直方图](#) [熵](#) [遥感图像](#) [图像分割](#)

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Design and realization of wetland remote sensing image segmentation method

SHI Yue-zhen¹, XIN Dong-jun²

1.School of Water Conservancy, Changsha University of Technology & Science, Changsha 410076, China

2.Computer Science College, Central South University of Forestry Technology, Changsha 410004, China

Abstract

A new effective multi-thresholds image segmentation method based on two-dimensional histogram FCM & entropy clustering is presented. Fuzzy C-means clustering algorithm has been widely used in automated image segmentation. However, the conventional FCM algorithm is noise sensitive because of not taking account of the spatial information. Fuzzy C-means clustering algorithm based on two-dimensional histogram is robust for noise, because it utilizes the gray level information of each pixel and its spatial correlation information within the neighborhood. The entropy term is introduced in object function that can suppress noise effectively and reduce influence of estimation of the cluster centers. Experimental results indicate that the new algorithm is better than FCM algorithm.

Key words [fuzzy C-means clustering](#) [two-dimensional histogram](#) [entropy](#) [remote sensing image](#) [image segmentation](#)

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通讯作者 石月珍 shiyz8@126.com

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