Abstract

Image segmentation plays a preliminary and indispensable step in medical image processing. Magnetic resonance (MR) segmentation used for brain tissues extraction white matter (WM), gray matter (GM) and cerebrospinal fluids (CSF). These tissues help in many medical image segmentation applications such as radiotherapy planning, clinical diagnosis, treatment planning and Alzheimer disease. This paper presents a novel manipulation or utilization of Fuzzy C-Means (FCM) Clustering by using wavelet Decomposition for feature extraction and feature vector treat as input to FCM. This algorithm is called Wavelet Fuzzy C-means (WFCM), the algorithm results are compared with standard FCM and Kernelized Fuzzy C-Means (KFCM). The performance of the proposed segmentation algorithm provides satisfactory results compared with the other two algorithms.

References

- K. Xiao, S. Hock, and A. Bargiela, "Automatic brain MRI segmentation scheme
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- A. F. Goldszal and D. L. Pham, "Volumetric Segmentation of Magnetic Resonance Images of the Brain," in Handbook of Medical Image processing, I. Bankman,
MRI Brain Image Segmentation based on Wavelet and FCM Algorithm


- S. Kannana, A. Sathyab, S. Ramathilagam, and R. Devi, "Novel segmentation
MRI Brain Image Segmentation based on Wavelet and FCM Algorithm


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