Abstract

MRI of brain can reveal important abnormalities and brain diseases such as brain tumours if these MRI images can be processed properly by intelligent algorithms. As the MRI images have low contrast and contain noise; it is difficult to precisely separate the region of interest between tumour and normal brain tissues.

In this paper, computationally intelligent techniques have been presented to classify brain MRI images into normal and abnormal (having tumour) ones.

The first method uses Gabor filters to extract the texture features from magnetic resonance brain images and then performs classification between normal and abnormal images using Support Vector Machine (SVM). A second method is also presented which uses novel histogram comparison method of left and right halves of brain based on Bhattacharya coefficient and finds bounding box as region of interest (ROI). Texture features are extracted using Gabor filters from this ROI. Finally the classification of images was performed using Artificial Neural
Networks. A comparison of both the proposed methods is given at end.

References


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Index Terms

Computer Science Image Processing
Keywords

MRI, brain tumour, support vector machine, artificial neural network, Gabor filter, classification, feature extraction