Abstract

Artificial Intelligence (AI) and related computational tools are making their presence felt in various walks of life. However, AI in healthcare is grabbing more attention in latest trends of research with improved accuracy of I based techniques for different health related problems. This paper presents a technique for brain tumor classification using an amalgamation of image processing techniques and artificial intelligence. Brain tumors are often very difficult to classify into malignant and benign categories owing to the high level of similarity among the two categories of images. The proposed technique uses the discrete wavelet transform along with threshold based segmentation for separation and de-noising of brain tumor images. Further, feature extraction is performed followed by training a probabilistic neural network with the computed feature values. Principal component analysis is used for reduction of the dimensionality of the training data. It has been found that the proposed technique achieves a classification accuracy of 98% for the used data set. It is expected that the proposed approach can be useful for effective automated classification of brain tumor images.
References


Index Terms

Computer Science

Image Processing

Keywords
Artificial Intelligence, Brain tumor classification, threshold based segmentation, discrete wavelet transform (DWT), Principal Component Analysis (PCA), Probabilistic neural network (PNN).