Abstract

Cancerous tumors considered being one of the acute diseases that cause the human death especially brain cancers.

Many computer-aided diagnosis systems are now widely spread to aid in brain tumors diagnosis. Therefore, an automated and reliable computer-aided diagnostic system for diagnosing and classifying the brain tumor has been proposed [1].

MRI (Magnetic resonance Imaging) is one source of brain tumors detection tools, but using MRI in children brain tumors classification is considered to be difficult process according to the variance and complexity of tumors. This paper presents a survey of the most famous techniques used for the classification of brain tumors based on children MRI [2].

The brain tumors detection and classification systems consist of four stages, namely, MRI preprocessing, Segmentation, Feature extraction, and Classification stages respectively. In the
first stage, the main task is to eliminate the medical resonance images (MRI) noise which may cause due to light reflections or any inaccuracies in the imaging medium.

The second stage, which is the stage where the region of interest is extracted (tumor region). In the third stage, the features related to MRI images will be obtained and stored in an image vector to be ready for the classification process. And finally the fourth stages, where classifier will take place to specify the tumor kinds.

TANNN is a new classification technique user to get a very high performance compared with other classification techniques such as KNN, SVM, DT, and Naïve Bayes.

Image classification is an important task in the image processing and especially in the medical diagnosis field. Image classification refers to the process of labeling images into one of a number of predefined categories. In this survey, the test of various classification techniques against each other will be present.

References


13. BRATS brain tumor dataset, www.braintumorsegmentation.org
15. OASIS brain tumor dataset, www.oasis-brains.org/
16. ADNI brain tumor dataset, www.adni.loni.ucla.edu/

**Index Terms**

Computer Science  
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**Keywords**

Brain Tumor, MRI, Image Classification, Naïve Bayes, Decision Tree, Support Vector Machine, k-Nearest Neighbor.