Using Data Mining Techniques for Children Brain Tumors Classification based on Magnetic Resonance Imaging

International Journal of Computer Applications
Foundation of Computer Science (FCS), NY, USA

Volume 131
- Number 2

Year of Publication: 2015

Authors:

Eman M. Ali, Ahmed F. Seddik, Mohamed H. Haggag

10.5120/ijca2015907268

Abstract

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 technique for the classification of brain tumors based on children MRI.

The proposed system consists of four stages, namely, MRI preprocessing stage, Segmentation stage, Feature extraction, and Classification stage. In the first stage, the main task is to eliminate the medical resonance images (MRI) noise found in images due to light reflections or operator performance which may cause inaccuracies in the classification process. The second stage, which is the stage where ROI is extracted (tumor region). In the third stage, the features related with MRI images using Haar wavelet transform (HWT) will be obtained. The features of magnetic resonance images (MRI) have been decreased using (HWT) to essential features only. And finally the fourth stages, where new classifier will be presented and finally the result will compare the proposed classifier with six other classifiers have been used.
Image classification is an important task in the medical field and computer vision. 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. And it is expected that TANNN will provide better results in terms of sensitivity, specificity, accuracy and overall running time.

References


Index Terms

Computer Science Information Systems

Keywords

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