Abstract

Nowadays, automatic defects detection in MR images is very important in many diagnostic and therapeutic applications. Because of high quantity data in MR images and blurred boundaries, tumor segmentation and classification is very hard. This paper has introduced one automatic brain tumor detection method to increase the accuracy and yield and decrease the diagnosis time. The goal is classifying the tissues to two classes of normal and abnormal. MR images that have been used here are MR images from normal and abnormal brain tissues. Here, it is tried to give clear description from brain tissues using Zernike Moments, Geometric Moment Invariants, energy, entropy, contrast and some other statistic features such as mean, median, variance, correlation, values of maximum and minimum intensity. It is used from a feature selection method to reduce the feature space too. This method uses from neural network to do this classification. The purpose of this project is to classify the brain tissues to normal and abnormal classes automatically, that saves the radiologist time, increases accuracy and yield of diagnosis.
A Neural Network-Based Method for Brain Abnormality Detection in MR Images Using Zernike Moments and Geometric Moments

Reference

A Neural Network-Based Method for Brain Abnormality Detection in MR Images Using Zernike Moments and Geometric Moments

- Marcel Prastawa a, Elizabeth Bullitt c, Sean Ho a, Guido Gerig, “A Brain Tumor Segmentation Framework Based on Outlier Detection” Medical Image Analysis ,1-9 (2004).
- http://documents.wolfram.com
- Zafer Iscan, Zümray Dokur, Tamer Ölmez “Tumor detection by using Zernike moments
on segmented magnetic resonance brain images” Expert Systems with Applications 37, 2540–2549 (2010).


**Index Terms**

Computer Science

Biomedical
Applications

**Key words**

- Feature extraction
- Kernel F-score feature
- selection
- Gabor wavelets
  - artificial neural network
  - tumor detection
  - segmentation
- MR images