A Neural Network based Method for Brain Abnormality Detection in MR Images Using Gabor Wavelets

Abstract

Nowadays, automatic defects detection in MR images is very important in many diagnostic and therapeutic applications. This paper introduces a Novel automatic brain tumor detection method that uses T1, T2_weighted and PD, MR images to determine any abnormality in brain tissues. Here, has been tried to give clear description from brain tissues using Gabor wavelets, 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 Gabor Wavelets

- 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
- 1Nathan Moon, 2Elizabeth Bullitt, 4Koen van Leemput, and 1;3Guido Gerig, “Automatic Brain and Tumor Segmentation”, MICCAI2002, LNCS2488(I) pp. 372-379
A Neural Network based Method for Brain Abnormality Detection in MR Images Using Gabor Wavelets


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