Abstract

Presented work is a feature-extraction and classification study for Alzheimer's disease (AD), Mild Cognitive Impaired (MCI) and Normal subjects. The proposed technique consists of three
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stages, namely, normalization of 3D MRI, feature extraction, and classification. In the first stage, we have normalized 3D MR images using VBM analysis, spatially filtered and slice averaged in order to obtain 2D MR slice. In the second stage, obtained the features related to MRI images using discrete wavelet transformation (DWT) with mother wavelets Haar and Daubechies. In the classification stage, a classifier based on feed forward backpropagation artificial neural network (FP-ANN). Classification is obtained with accuracies of 74% and 67% using Daubechies wavelet and Haar wavelet respectively. Used subjects from the ADNI database.

Reference

- AmirEhsan Lashkari A Neural Network-Based Method for Brain Abnormality Detection in
Classification of 3D Magnetic Resonance Images of Brain using Discrete Wavelet Transform


Index Terms

Computer Science
Signal Processing

Key words

3D MRI
ANN
DWT Features

SPM
VBM