Abstract

Early detection of Alzheimer's disease (AD) is important so that preventative measures can be taken. Current techniques for detecting AD rely on cognitive impairment testing which unfortunately does not yield accurate diagnoses until the patient has progressed beyond a moderate AD. Alzheimer's disease considered being one of the acute diseases that cause the human death especially in people above 60 years old.

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

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

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

References

16. ADNI brain Alzheimer dataset, www.adni.loni.ucla.edu/

**Index Terms**

Computer Science  
Image Processing

**Keywords**

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