

Diagnosis of Alzheimer Diseases in Early Step Using Support Vector Machine (SVM)

Authors : Amira Ben Rabeh, Faouzi Benzarti, Hamid Amiri, Mouna Bouaziz

Abstract : Alzheimer is a disease that affects the brain. It causes degeneration of nerve cells (neurons) and in particular cells involved in memory and intellectual functions. Early diagnosis of Alzheimer Diseases (AD) raises ethical questions, since there is, at present, no cure to offer to patients and medicines from therapeutic trials appear to slow the progression of the disease as moderate, accompanying side effects sometimes severe. In this context, analysis of medical images became, for clinical applications, an essential tool because it provides effective assistance both at diagnosis therapeutic follow-up. Computer Assisted Diagnostic systems (CAD) is one of the possible solutions to efficiently manage these images. In our work; we proposed an application to detect Alzheimer's diseases. For detecting the disease in early stage we used the three sections: frontal to extract the Hippocampus (H), Sagittal to analysis the Corpus Callosum (CC) and axial to work with the variation features of the Cortex(C). Our method of classification is based on Support Vector Machine (SVM). The proposed system yields a 90.66% accuracy in the early diagnosis of the AD.

Keywords : Alzheimer Diseases (AD), Computer Assisted Diagnostic(CAD), hippocampus, Corpus Callosum (CC), cortex, Support Vector Machine (SVM)

Conference Title : ICCSA 2016 : International Conference on Computational Science and Applications

Conference Location : Tokyo, Japan

Conference Dates : May 26-27, 2016