Heterogeneous Ensemble Classifier Model for Early Alzheimer’s Disease Diagnosis

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Abstract—Alzheimer disease (AD) is the most common form of dementia that severely affects elderly population worldwide. The early diagnosis of Alzheimer disease in association with treatment still remains challenging. This research aims in exploring the power of ensemble classifier for early diagnosis of Alzheimer disease. In this context, Heterogeneous voting-based ensemble classifier was designed selecting diverse set of base classifiers such as Naïve Bayes(NB), K-nearest neighbour (KNN) and Support Vector Machine (SVM). Designed Ensemble model was evaluated on Cerebrospinal Fluid (CSF) AD biomarker datasets to investigate the potential of designed ensemble classifier against its individual base classifier. Our ensemble model exhibited better results in classifying AD in terms of accuracy, specificity and sensitivity. Thus the outcome of this study strongly suggests to apply ensemble of classifiers to enhance the classification accuracy in AD diagnosis.

Keywords—Alzheimer’s disease diagnosis, Ensemble Classifier, K-Nearest Neighbour, Support Vector Machine, Naïve Bayes.