

ENHANCE WEAK LEARNER MODEL OF ADABOOST (EWDM) FOR DIABETES MELLITUS CLASSIFICATION

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ABSTRACT. *Diabetes is a disorder in which the body is unable to use blood sugar as energy normally. There are also many factors that can cause diabetes such as age, weight, and blood sugar levels. Detection of disease is not easy, and prognosis is also expensive. Our research has therefore developed the Enhance Weak Learner Model of AdaBoost (EWDM), which is an improvement of original AdaBoost, EWDM uses a correlation-based feature selection, reduces the number of features to only those that are related to each other to increase the efficiency of classification and also reduce the burden of processing, and builds a model of weak learner using three algorithms: k-nearest neighbor, Naïve Bayes and support vector machine by which EWDM will improve the process of weak learner modeling that will create the best hypothesis for each iteration while managing to remove as many errors as possible before creating the best final hypothesis. Our experiments used the Pima Indian Diabetes dataset. By analyzing the performance compared to supervised learning and ensemble learning, the results showed that EWDM outperformed all comparative methods both supervised learning and ensemble learning, with an accuracy of 88.26%. In addition, compared to other diabetes datasets, EWDM was the highest effective model as well compared to other methods, The Early Stage diabetes risk prediction dataset shows accuracy up to 100% and Type 2 diabetes dataset as high as 96.84%. The obtained results indicate EWDM is well suited to classifying diabetes in both blood results and health data.*

Keywords: CFS, Diabetes mellitus, Ensemble learning, EWDM