



Modelling a combined method based on SVM, NN and Boosted C5.0 decision tree for Hepatitis Disease Diagnosis

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Abstract: With the widespread adoption of e-Healthcare and telemedicine applications, accurate, intelligent disease diagnosis systems have been profoundly coveted. Like other clinical diagnosis problems, classification systems have been used for diagnosis of hepatitis disease. Because of the importance of hepatitis disease, in recent years, many studies have been conducted on this disease using data mining. In this study, a computational combined method of Support Vector Machine (SVM), Neural Network (NN) and Decision Tree (C5.0) is proposed for the diagnosis of Hepatitis disease. Support Vector Machine and Neural Network are selected as base classifiers and Boosted C5.0 is used for inducing rules. C5.0 boost decision tree improves the aspects of generating rules and algorithm precision to achieve more accurate generation rules, faster speed, and lower error rate, it is more suitable for classification of large data sets. SVM is based on a Hierarchical Grid Search procedure (HGS) for tuning parameters of kernel function to enhance the performance of our model and NN is enhanced by Weighted Probabilistic method (WP). For a particular problem, weighted probabilistic method assigns appropriate weight to each feature and applies it to predict more accurately. Prediction accuracy is measured on a dataset that we took it from the UCI machine learning database and the accuracy of our method is very promising with regard to other classification methods in the literature.

Keywords: Hepatitis Disease Diagnosis; Support Vector machine; Neural Network; Boosted C5.0 decision tree.

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