Effects of Feature Selection on the Identification of Students with Learning Disabilities Using ANN

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Abstract

Due to the implicit characteristics of learning disabilities (LD), the identification and diagnosis of students with learning disabilities has long been a difficult issue. Identification of LD usually involves interpreting some standard tests or checklist scores and comparing them to norms that are derived from statistical method. In our previous study, we made a first attempt in adopting two well-known artificial intelligence techniques, namely, artificial neural network (ANN) and support vector machine (SVM), to the LD identification problem. The preliminary results are quite satisfactory, and indicate that we may be going in the right direction. In this paper, we go one step further by combining various feature selection algorithms and the ANN model. The outcomes show that the correct identification rate has improved quite a lot over what we achieved previously. The combined selected features and the ANN classifier can be used as a strong indicator in the LD identification process and improve the accuracy of diagnosis.