THE STUDY OF SUPERVISED CLASSIFICATION TECHNIQUES IN MACHINE LEARNING USING KERAS

By

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ABSTRACT

Predictive Data mining is a major technique, which is supported by Machine Learning (ML) and is the most important criteria for any kind of ML applications. The datasets instances used by ML algorithms are represented by using the similar group of characteristics. The characteristics might be continuous, categorical or binary. If the known labels are given to instances such kind of learning is called as supervised, similarly where the instances are not provided with labels then we call it as unsupervised learning. The main motto of supervised learning is that creating a concise model for the class labels distribution regarding predictor characteristics. During this a classifier, which is produced will map a class label to examine the instances of known values of the predictor features where a value of class label is unknown. The term Classification refers to the method of forecasting the same data based on the categorical target value or a categorical class variable. This might be purposeful for any form of statistical data. The paradigms are most useful for the image classification, techniques of data mining, Predictive modeling and so on. Hence many techniques were developed on the basis of Artificial Intelligence (Logic-based techniques, Perceptron-based techniques) and Statistics (Bayesian Networks, Instance-based techniques). This paper describes about the major kinds of ML algorithms along with an experimental study and its applications. The future scope of Machine Learning and its importance in different research domains are also mentioned.

Keywords: Data Mining, Classification Techniques, Machine Learning, SVM.

INTRODUCTION

The Machine Learning (ML) approach is considered as a technique for teaching machines the way to manage data very efficiently and attain more accurate results. In some situations after viewing data, we cannot study the pattern or get any precise information from that. In such situation, we can apply the techniques of Machine Learning for data prediction (Richert & Coelho, 2015). The datasets with high quantity are available in various sources. Several industries from the medical to military are implementing machine learning to retrieve concerning information from the prevailing datasets. The main intension with the machine learning is that to learn from available data. Most of the paradigms are developed to make the machine learn itself (Welling, 2011; Bowles, 2015). Many of the mathematicians as well as programmers have applied various techniques to solve this issue. Few of them are described in Figure 1 and further details are given in section 1. In earlier studies, the classification method is again categorized into different techniques to classify the data with related class labels. Few of those techniques which are recommended by the researchers are: Decision tree based method, Bayesian Classifiers, Neural Network based classifiers, Support Vector Machines (Neelamegam & Ramaraj, 2013; Qin et al., 2009). A Decision tree based classification model is one of the easiest methods in creating a classifier model and is a graphical representation of data point attributes using