URN etd-0407109-183712-944
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Statistics This thesis had been viewed 83 times. Download 0 times.
Department
Year 2004
Semester 1
Degree Master
Type of Document Master's Thesis
Language zh-TW.Big5 Chinese
Title Improving Naive Bayes Classifier with Multiple Attributes Association Rules
Date of Defense 0000-00-00
Page Count 55

Keyword
Classification
Classifier
NaU+EFve Bayesian Classifier(NBC)
Attribute Independence Assumption
Association Rule

Abstract
Many previous studies indicate that NBC (NaU+EFve Bayesian Classifier) is a simple and effective classification method. But NBC's attribute independence assumption on which it is based, makes it unable to cope with the dependence among attributes, and affects its classification performance. There are many improvement methods that put forward in times gone by, however the accuracy promotes meanwhile, but usually needs tremendous calculation time.
This research provides a new classification method: MANBC (Multiple Attributes NaU+EFve Bayes Classifier). MANBC adopts a greedy algorithm to generate important class association rules from the examples that missed classification by NBC and uses the best rule in prediction.
In the experiment, we compared the MANBC with other 13 methods by running the tests from 31 data sets of the UCI Repository. Experimental results showed that MANBC outstrips NBC, on an average. The classification accuracy is higher about 1% to 2%, and in the data set that attribute independence assumption is violated, its margin is about in the amount of 20%. Meanwhile, the number of the rules generated by MANBC is usually 7% of CPAR's only. In the time aspect, for those classifiers that are as accurate as MANBC, their performance times are slightly longer than MANBC's, except CPAR.
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Files No Any Full Text File.
Date of Submission 2005-08-16