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شبكة المعلومات الجامعية التوثيق الالكتروني والميكروفيلم



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جامعة عين شمس

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بالرسالة صفحات لم ترد بالأصل



A Data Mining Tool Using a Modified Ordered Attribute Trees Algorithm for Handling Missing Values

By

Mona Farouk Ahmed Kamal El Deen

A Thesis Submitted to the
Faculty of Engineering at Cairo University
in Partial Fulfillment of the
Requirements for the Degree of
MASTER OF SCIENCE
In
COMPUTER ENGINEERING

Under the Supervision of

Prof. Dr. Nevin M. Darwish
Computer Engineering Department
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FACULTY OF ENGINEERING, CAIRO UNIVERSITY

GIZA, EGYPT

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Abstract

Data mining techniques are becoming increasingly useful in a wide range of environments as a source of business intelligence. A wide range of companies has deployed successful applications of data mining. When attempting to discover by learning concepts embedded in data it is common to find that information is missing from the data. Such missing information can diminish the confidence on the concepts learned from the data. When missing values occur in the data, the learning algorithm fails to find an accurate representation of the concept. Properly filling missing values in data helps in reducing the error rate of the learned concepts. This work aims at solving the problem of missing values in data presented to a data mining decision tree learner. The missing values handling technique proposed in this work is a modification of the Ordered Attribute Trees method which is a machine learning approach to the missing values problem. A decision tree is constructed to determine the missing values of each attribute by using information contained in other attributes. Also, an ordering for the construction of the decision trees for the attributes is formulated.

This work is presented together with an implementation of two other missing values handling techniques namely, Unordered Attribute Trees which is also a machine learning approach and the Probabilistic method which is a good example of the statistical approach for handling missing values. The three methods are tested on the same data sets and performance results and evaluation are presented. Results show the proposed modification is at advantage in comparison to the other two techniques.

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