# NEURAL NETWORKS FOR DATA MINING

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## Abstract:

The main use of neural networks is data mining. In the Data Mining, there is a data warehouse where businesses keep the accumulated data over many years. The corporations make significant profits thanks to the database information that has been retrieved. Data mining tools assist people in making decisions. Data mining is not a hopeful endeavour. Artificial neural networks, regression, and decision trees are technologies used in data mining. In data mining using neural networks, there are two methods used: Rule extraction and straightforward learning. Comprehensive models can be produced using neural networks without the need for training time. This essay provides an introduction to data mining. In this essay, we conduct extensive research on data mining.

Keywords: Neural N/w, Data Mining, Artificial Neural N/w, Rule extraction

## 1. Introduction

The method of removing value from a database is known as data mining. There is a data warehouse where data is kept. There is a chance that the corporations will make money if the data can be pulled from the database.

A parallel processing network is a neural network. It makes use of the non-linear mapping concept. Data mining is not a hopeful endeavour. Data mining techniques aid in helping people make decisions. Data mining calls for high-quality data, the appropriate data, a sufficient sample size, and the appropriate instrument. For instance, the financial company had two options for figuring out the client's income. From a credit card and their normal bank accounts through direct transfers. This information wasn't extracted and used. Rule extraction and learn simple are the two methods used in data mining with neural networks.

## 2. Artificial Neural Networks

A mathematical or computational model is another name for an artificial neural network. Based on non-linear mapping systems, the human brain functions. These are very fine-grained networks. Units in networks are numerous. These units, which are connected by unidirectional connections, each have their own memory. These neurons operate off of local information. An artificial neural network has connections between groups of neurons. It possesses several traits, including parallel processing and self-organizing learning. An adaptive system is an ANN. It can alter both its figure and structure.

## 3. Data Mining Process on Neural Network

Data mining process constructed by some phases; data preparation, data mining and result expression shown in the figure;



Fig. 1: Data Mining

## **Data Integration**

Data integration creates a mixed view of data by combining information from numerous sources that are stored using various methods. When a company's systems are combined for data mining, a unified perspective of the companies based on their data assets is produced. A data warehouse is a later endeavour. The data stored in a data warehouse is used to support business analyses that result in profit.

## **Data Integration Areas**

- Data Warehousing
- Migrate the data

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- Integration of information
- Master data management

### **Techniques:**

Non automatic Integration:-different views of data do not exist in this integration.

### **Application Based Integration**

Middleware Data Integration:-With this, we transfer the particular application to a new layer.

Constant Data Access:-Leave the data in the source system and define the set of views to give and run the unified view to the client across whole operation.

### Common or same data storage

### Tools:

- I. Data mining wizard:-This wizard helps to create mining solution. This wizard quickly gives the guidance for the process to create data mining structure and also define the initial mining.
- II. SQL server management studio:-This model helps to select the algo. And define the tasks for data source and define the case for analysis the data.
- III. Data mining designer:-Alter the mining structure and mining model, which are made by data mining wizard.
- Make new models based on the existing mining str.
- Train and then browse mining models.
- Compare the models using accuracy charts.
- Create prevision queries based on mining models.

## a. Data Preparation

To make the data mining method accurate, it is utilised to define and process the mining data. It is the transformation of data into a form that can be processed and understood. Data mining with poor quality data produces inconsistent and inaccurate results. Data preparation helps to improve the quality of the data and the outcomes. Also referred to as "garbage in, garbage out." ISSN:2735-9883 \ E-ISSN:2735-9891



Fig. 2: Data preparation

## b. Rules Extracting

To extract rules, there are many methods which are used.LRE method, fuzzy rules, black box method and partial and full rules extracting algorithm.

## c. Rules Assessment

This rule depends on the specific applications are following as:

- I. Search the best sequence of extracting rules, to obtain the best result in the given data set.
- II. Check the exactness or sureness of the rules extracted.
- III. Detect the difference or deviation between the trained neural network and extracted rules.

## 2. Data Mining Based on Fuzzy Neural Network

Neural networks are capable of powerful learning, training, association, and classification functions. However, when neural networks are used for mining, the results produced cannot be truly accurate. So, by incorporating fuzzy processing into this network, its output capacity will be increased. However, the system also gets steadily more stable. The expected membership of the samples to various kinds takes the place of the expected output value of the samples in fuzzy BP networks. Fuzzy BP provides the relationship between the training set's input and output as well as the membership of the recognition pattern. Adjust weight in accordance with error size. The performance of hidden weights has also been improved.

## **Application of Neural Network**

- I. Prediction—atmospheric conditions, stocks, disease
- II. Categorization—financial risk analysis, image processing

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- III. Data Connection—OCR
- IV. Data Formulation—Customer purchasing habits
- V. Refining—Normalizing telephone signals

### **Advantages of Neural Network**

- I. Adjust to unknown situations
- II. Robustness
- III. Self-governing
- IV. Neural network can be implemented in any application and without any problem
- V. Neural network does not need to be reprogrammed
- VI. High Accuracy

VII. Ease of maintenance, neural networks can be updated with good data, making it useful for active or dynamic environment

VIII. Neural network instrumented in parallel h/w

IX. Neural networks are flexible w.r.t incomplete, noisy data

#### Conclusion

In this study, we employ the most effective data mining technology that is currently accessible. We assess the neural network's potential as a key data mining tool. Due to its ability to anticipate outcomes better than other techniques employing actual data sources, neural networks have become increasingly popular with data miners. to decrease the amount of input units, which will decrease training time while increasing accuracy. This is implemented using NS-2 simulator.

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