

Neural Network Applications for Business Classifications:
The State of Art

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Abstract

Classification refers to separating distinct sets of objects or observations and allocating new objects or observations into previously defined groups. Areas of business classification include bankruptcy prediction, accounting method choice, audit opinion decisions, credit rating prediction, and bank loan classifications.

Business researchers have traditionally used statistical techniques for classification. In late 1980's, inductive learning started to be used for business classification. Quite recently, neural network began to be applied for business classification. The empirical results of previous studies show that the neural network approach is the most powerful classification tool as far as predictive accuracy is concerned though there remains many unresolved issues on the design and implementation of neural network.

Neural network can handle noisy data well and adaptively adjust the model parameter when encountered new environments, decrementally retaining the importance of past data. Neural network is very flexible and maintain nonparametric advantages like ID3. While neural network lack the explanatory capability which can explain the relative importance of input variable, the power of neural network model outweighs the drawback as far as the prediction accuracy is concerned.

This paper critically reviews business classification studies using neural networks, discusses the design and implementation issues of neural network, and suggest the possible structure of optimal neural network model.

There has yet been a formal method to design a neural network appropriate for a certain task. The new paradigm for neural network is proposed in this study. It is based on the simulation procedure. Simulation techniques are characterized by time-dependent, algorithmic, and mathematic modeling property.

As computer technology advances, simulation techniques have also undergone dramatic change from conventional algorithm-oriented approaches to intelligent approaches. Applying simulation procedure to neural network yields some benefits. Neural network operation can be organized in the simulation mechanism. Since there is a similarity between neural network operation and simulation process, these two models can be integrated without difficulties. Then, neural network experiments will be much easier and more systematic.