

DETERMINANTS OF ONLINE AUCTION OUTCOMES: A NEURAL NETWORK APPROACH

*Jianwei Hou, College of Business, Minnesota State University Mankato Mankato, MN 56001,
507-389-5092, jianwei.hou@mnsu.edu*

ABSTRACT

Artificial Neural Networks (ANNs) have become a powerful statistical method in recent years and been widely applied across a broad range of areas, including pattern recognition, modeling, classification, evaluation, and forecasting.

One primary advantage of neural networks over statistical models (e.g., discriminant analysis, logistic regression, and multiple regression models) is that neural networks can generate universal estimators for either linear or non-linear functions. This means that neural networks can automatically estimate whatever function forms that best fit the data.

The present study applies neural networks to analyze online auction outcomes as compared to other statistical models. Two types of problems are solved. One is a binary choice problem (i.e., whether an item is sold or not); another is a problem with a continuous dependent variable (i.e., the final price of an auction).

This study begins with basic concepts of neural networks and statistical models. Based on the online bidding data, a comparison is made between neural networks and statistical models on the basis of the prediction accuracy and error measures. Finally, a summary of the advantages and limitations of neural networks is provided.