

# **NEURAL NETWORK APPLICATIONS IN STOCK MARKET PREDICTIONS**

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## **ABSTRACT**

The traditional mathematical model cannot effectively explain stock market behaviors and has often proved to be baffling for investors due to unreasonable hypotheses on which these models exist. Moreover, the fluctuation of market makes its prediction difficult. Even whilst considering its unpredictability, some patterns do exist which can assist in making proximate predictions. Hence to analyze and better interpret these patterns, we need to employ a form of intelligence smarter than average human intellect. The idea of a machine with learning capability has been one of the driving forces behind artificial intelligence and the same can be a boon for stock traders.

As of 2012, approximately 60% of world stock trades are driven by artificial intelligence-based software. The paper presents the effective use of artificial neural network (ANN) model which is applicable in predicting market behavior by using the present and past financial data. The artificial neural networks can be trained by feeding time series data and investment data which includes statistical information about the variations in stock prices and number of investors, past and current market status of the company and the companies associated with this stock or commodity. It can be trained using backpropagation algorithm or similar techniques over a period of time due to which it can provide investors with short time range predictions of stock and commodity prices and market behavior. Thus, this prediction can help investors make more precise investment decisions which, in turn could lead to higher monetary returns.

**KEYWORDS:** Artificial Intelligence, Backpropagation Algorithm, Artificial Neural Network, Stock Market, Prediction