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# Ann Model To Predict Stock Prices At Stock Exchange

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Applied Soft Computing and Communication Networks

Stock Prediction Using Machine Learning

Artificial Neural Network Modelling

Forecasting of Stock Market Indices Using Artificial Neural Network

Stock Market Forecasting Using Neural Network Models

Head First Python

A Stock Price Prediction Model by the Neural Network Approach

Stock Market Prediction and Efficiency Analysis using Recurrent Neural Network

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(SocProS 2011) December 20-22, 2011  
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**Applied Soft Computing and  
Communication Networks** LAP

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The objective is to provide the latest  
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[Stock Prediction Using Machine Learning](#)  
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Stock market trends are of great interest  
to investors and corporations worldwide.

The global financial system is intricately interconnected with the stock market, playing a central role in driving economic activity. In today's interconnected world, trading stocks has become a popular and accessible means for individuals and entities to generate income. Numerous academic researchers have explored the use of Artificial Intelligence (AI) for stock prediction and have claimed that their models can accurately forecast stock performance. The issue is that many of these studies rely on a single data source, namely, daily stock data and cannot predict future stock prices, more than 1 or 2 days, with a large degree of success. Additionally, the single data source may be influenced by a multitude of economic factors as well as public

sentiment, which is the most significant. In this research paper, several of these AI models are tested to evaluate their claims regarding stock prediction capabilities. Based on our experiments utilizing AI models and the results gathered, it was concluded that it was not possible to predict future stock prices using one method alone. Therefore, in order to provide a greater accuracy in predicting future stocks, the use of an ensemble approach was proposed. While many researchers build their ensemble models by combining various Artificial Neural Network models with sentiment analysis. We have suggested a different approach using other kinds of AI models, along with enhancements to traditional sentiment analysis techniques.

### Artificial Neural Network Modelling

Springer

In this research, we compare the forecasting performance of ANN and linear regression strategies in Istanbul Stock Exchange and we get some evidence of statistical and financial out perform of ANN models. Although the out-of-sample forecast accuracy statistics (RMSE, MAE and Theil's U) of ANN models which employ daily and monthly data are not better than the alternative regression models, we get significant evidence for a superior market direction prediction of ANNs. The ANN models correctly predict the signs of stock indexes up to 57,8 per cent, 67,1 per cent and 78,3 per cent for daily, weekly and monthly data respectively. The ANN models also generate better

returns than the linear regression models when they are used as trading strategies. A hypothetical portfolio of 1 YTL initial value reach up to 2,76 YTL, 2,63 YTL and 3,35 YTL for daily, weekly and monthly data respectively, which are better than regression and buy-and-hold strategies.

*Forecasting of Stock Market Indices Using Artificial Neural Network* "O'Reilly Media, Inc."

The papers in this volume are the refereed application papers presented at AI-2005, the Twenty-fifth SGAI International Conference on Innovative Techniques and Applications of Artificial Intelligence, held in Cambridge in December 2005. The papers present new and innovative developments in the field, divided into sections on Synthesis

and Prediction, Scheduling and Search, Diagnosis and Monitoring, Classification and Design, and Analysis and Evaluation. This is the thirteenth volume in the Applications and Innovations series. The series serves as a key reference on the use of AI Technology to enable organisations to solve complex problems and gain significant business benefits. The Technical Stream papers are published as a companion volume under the title Research and Development in Intelligent Systems XXII.

*Stock Market Forecasting Using Neural Network Models* GRIN Verlag

An introduction to the theory and methods of empirical asset pricing, integrating classical foundations with recent developments. This book offers a comprehensive advanced introduction to

asset pricing, the study of models for the prices and returns of various securities. The focus is empirical, emphasizing how the models relate to the data. The book offers a uniquely integrated treatment, combining classical foundations with more recent developments in the literature and relating some of the material to applications in investment management. It covers the theory of empirical asset pricing, the main empirical methods, and a range of applied topics. The book introduces the theory of empirical asset pricing through three main paradigms: mean variance analysis, stochastic discount factors, and beta pricing models. It describes empirical methods, beginning with the generalized method of moments (GMM) and viewing other methods as special

cases of GMM; offers a comprehensive review of fund performance evaluation; and presents selected applied topics, including a substantial chapter on predictability in asset markets that covers predicting the level of returns, volatility and higher moments, and predicting cross-sectional differences in returns. Other chapters cover production-based asset pricing, long-run risk models, the Campbell-Shiller approximation, the debate on covariance versus characteristics, and the relation of volatility to the cross-section of stock returns. An extensive reference section captures the current state of the field. The book is intended for use by graduate students in finance and economics; it can also serve as a reference for professionals.

#### *Head First Python* Springer

It is vitally crucial to establish a method that can accurately forecast prices on the stock exchange market because of the influence the stock market has on the country's ability to raise capital and advance its economic growth. On the stock market, a great number of sensitivity factors are connected to price movement, which is why the progressions associated with such a phenomenon are routinely evaluated. Several neural network models have recently been used to forecast stock prices. In this research, the data related to active companies in the stock market was used to evaluate research questions. Also, the neural network technique was used to look at all data from the market index, fuzzy neural

network model, and long short-term memory (LSTM) model from 2020 to 2021. Accordingly, this study aims to forecast the stock price and give a dynamic model with fewer errors using integrated factors, the technical, cardinal, and economic assessment of the market index using the neural network technique. This will be accomplished by utilizing the neural network method. The findings demonstrated that if the combined data of basic analytical factors was used further, we would not only have better training and receive better results, but we would also be able to decrease the prediction error.

**A Stock Price Prediction Model by the Neural Network Approach** John Wiley & Sons

Stock price analysis involves different methods such as fundamental analysis and technical analysis which is based on data related to price movement of the stock in the past. Price of the stock is affected by various factors such as company's performance, current status of economy and political factor. These factors play an important role in supply and demand of the stock which makes the price to be volatile in the short term. Investors and stock traders aim to book profit through buying and selling the stocks. There are different statistical and data science tools are being used to predict the stock price. Data Science and Statistical tools assume only the stock price's historical data in predicting the future stock price. Statistical tools include measures such as Graph and



Charts which depicts the general trend and time series tools such as Auto Regressive Integrated Moving Averages (ARIMA) and regression analysis. Data Science tools include models like Decision Tree, Support Vector Machine (SVM), Artificial Neural Network (ANN) and Long Term and Short Term Memory (LSTM) Models. Current methods include carrying out sentiment analysis of tweets, comments and other social media discussion to extract the hidden sentiment expressed by the users which indicate the positive or negative sentiment towards the stock price and the company. The book provides an overview of the analyzing and predicting stock price movements using statistical and data science tools using R open source software with hypothetical stock

data sets. It provides a short introduction to R software to enable the user to understand analysis part in the later part. The book will not go into details of suggesting when to purchase a stock or what at price. The tools presented in the book can be used as a guiding tool in decision making while buying or selling the stock. Vinaitheerthan Renganathan [www.vinaitheerthan.com/book.php](http://www.vinaitheerthan.com/book.php)  
Stock Market Prediction and Efficiency Analysis using Recurrent Neural Network  
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Artificial neural networks (ANNs) present many benefits in analyzing complex data in a proficient manner. As an effective and efficient problem-solving method, ANNs are incredibly useful in many different fields. From education to medicine and banking to engineering,

artificial neural networks are a growing phenomenon as more realize the plethora of uses and benefits they provide. Due to their complexity, it is vital for researchers to understand ANN capabilities in various fields. The Research Anthology on Artificial Neural Network Applications covers critical topics related to artificial neural networks and their multitude of applications in a number of diverse areas including medicine, finance, operations research, business, social media, security, and more. Covering everything from the applications and uses of artificial neural networks to deep learning and non-linear problems, this book is ideal for computer scientists, IT specialists, data scientists, technologists, business owners, engineers, government

agencies, researchers, academicians, and students, as well as anyone who is interested in learning more about how artificial neural networks can be used across a wide range of fields.

**The Predictors** Vinaitheerthan Renganathan

Stock exchanges are considered major players in the financial sector of many countries. In such exchanges, it is Stockbrokers who execute stock trade deals and advise clients on where to invest. Most of these Stockbrokers use technical, fundamental or time series analysis in trying to predict future stock prices, so as to advise clients on appropriate investments. However, these strategies do not usually guarantee good returns because they guide on trends and not the most likely

trade price of a future date. It is therefore necessary to explore improved methods of prediction. The research uses Artificial Neural Network (ANN) that is feedforward multi-layer perceptron (MLP) with error backpropagation to develop a model ANN of configuration 5:21:21:1 using 80% data for training in 130,000 cycles. The research then develops a prototype and tests it using 2008-2012 data from various stock markets, such as the Nairobi Securities Exchange (NSE) and New York Stock Exchange (NYSE). Results showed that the model predicted prices with MAPE of 0.71% to 2.77%. Validation done using Neuroph & Encog showed close RMSE. The model can therefore be used in any typical stock market predict.

### **Prediction of Stock Market Prices**

### **Using Neural Network Techniques**

Springer Science & Business Media Prediction of future movement of stock prices has been a subject matter of many research work. There is a gamut of literature of technical analysis of stock prices where the objective is to identify patterns in stock price movements and derive profit from it. Improving the prediction accuracy remains the single most challenge in this area of research. We propose a hybrid approach for stock price movement prediction using machine learning, deep learning, and natural language processing. We select the NIFTY 50 index values of the National Stock Exchange (NSE) of India, and collect its daily price movement over a period of three years (2015-2017). Based on the data of 2015-2017, we

build various predictive models using machine learning, and then use those models to predict the closing value of NIFTY 50 for the period January 2018 till June 2019 with a prediction horizon of one week. For predicting the price movement patterns, we use a number of classification techniques, while for predicting the actual closing price of the stock, various regression models have been used. We also build a Long and Short-Term Memory (LSTM)-based deep learning network for predicting the closing price of the stocks and compare the prediction accuracies of the machine learning models with the LSTM model. We further augment the predictive model by integrating a sentiment analysis module on Twitter data to correlate the public sentiment of stock

prices with the market sentiment. This has been done using Twitter sentiment and previous week closing values to predict stock price movement for the next week. We tested our proposed scheme using a cross validation method based on Self Organizing Fuzzy Neural Networks (SOFNN) and found extremely interesting results.

**Constructing a Model for Stock Price Prediction that Combines Nested Partition and Artificial Neural Network** Springer Science & Business Media

In this study the ability of artificial neural network (ANN) in forecasting the daily NASDAQ stock exchange rate was investigated. Several feed forward ANNs that were trained by the back propagation algorithm have been

assessed. The methodology used in this study considered the short-term historical stock prices as well as the day of week as inputs. Daily stock exchange rates of NASDAQ from January 28, 2015 to 18 June, 2015 are used to develop a robust model. First 70 days (January 28 to March 7) are selected as training dataset and the last 29 days are used for testing the model prediction ability. Networks for NASDAQ index prediction for two type of input dataset (four prior days and nine prior days) were developed and validated.

[Hands-On Machine Learning for Algorithmic Trading](#) MIT Press

This book constitutes the refereed proceedings of the Third International Conference on Swarm, Evolutionary, and Memetic Computing, SEMCCO 2012, held

in Bhubaneswar, India, in December 2012. The 96 revised full papers presented were carefully reviewed and selected from 310 initial submissions. The papers cover a wide range of topics in swarm, evolutionary, memetic and other intelligent computing algorithms and their real world applications in problems selected from diverse domains of science and engineering.

**An Improved Intelligent Model for Stock Market Time Series Data Prediction Using Fuzzy Logic and Deep Neural Networks** Packt Publishing Ltd

The researchers have been working on determining predictable patterns to forecast stock prices. But owing to nonstationary and nonlinear patterns of the data, the detection of new models

and forecasting techniques have become an extremely intricate task. Artificial Neural Network (ANN) models are highly flexible functional algorithms, developed using machine's cognitive learning. In recent years, there has been an exponential increase in neural network applications in finance for the tasks such as pattern recognition, classification and time series forecasting. ANNs provide a considerably accurate means to examine nonlinearity in stock prices. However, large numbers of parameters need to be selected in order to develop an appropriate neural network forecasting model. The present study aims at predicting the stock prices of CNX Nifty 500 using assorted independent variables using ANNs. The variables used in the study are USD-INR exchange rate,

crude oil price and major stock indices of USA (S&P 500), Euro Zone (Euro Stoxx 50), China (Shanghai Composite Index) and Japan (Nikkei 225). The paper considers daily data from January 2004 to December 2013. The series have been divided into training data and testing data to arrive at the most accurate model to be further used for predicting the stock prices for the next 10 months. The frequency of the given variables is daily, hence it would provide for a more efficient model incorporating smaller details such as daily volatility effect. The stock exchange data from foreign stock markets which open before and after the stock markets in India provide for change in market sentiments overnight. The preliminary data testing yielded encouraging results for the model. The

predicted values of stock have a testing accuracy of more than 85%.

*Predicting Stock Returns Using Neural Networks* IGI Global

Want to learn the Python language without slogging your way through how-to manuals? With *Head First Python*, you'll quickly grasp Python's fundamentals, working with the built-in data structures and functions. Then you'll move on to building your very own webapp, exploring database management, exception handling, and data wrangling. If you're intrigued by what you can do with context managers, decorators, comprehensions, and generators, it's all here. This second edition is a complete learning experience that will help you become a bonafide Python programmer in no time.

Why does this book look so different? Based on the latest research in cognitive science and learning theory, *Head First Python* uses a visually rich format to engage your mind, rather than a text-heavy approach that puts you to sleep. Why waste your time struggling with new concepts? This multi-sensory learning experience is designed for the way your brain really works.

**Utilizing Artificial Neural Network Model to Predict Stock Markets** LAP

Lambert Academic Publishing

Although interest in machine learning has reached a high point, lofty expectations often scuttle projects before they get very far. How can machine learning—especially deep neural networks—make a real difference in your organization? This hands-on

guide not only provides the most practical information available on the subject, but also helps you get started building efficient deep learning networks. Authors Adam Gibson and Josh Patterson provide theory on deep learning before introducing their open-source Deeplearning4j (DL4J) library for developing production-class workflows. Through real-world examples, you'll learn methods and strategies for training deep network architectures and running deep learning workflows on Spark and Hadoop with DL4J. Dive into machine learning concepts in general, as well as deep learning in particular Understand how deep networks evolved from neural network fundamentals Explore the major deep network architectures, including Convolutional and Recurrent Learn how

to map specific deep networks to the right problem Walk through the fundamentals of tuning general neural networks and specific deep network architectures Use vectorization techniques for different data types with DataVec, DL4J's workflow tool Learn how to use DL4J natively on Spark and Hadoop

*Using Artificial Neural Network to Predict Stock Prices* Macmillan

This book constitutes thoroughly refereed post-conference proceedings of the International Applied Soft Computing and Communication Networks (ACN 2020) held in VIT, Chennai, India, during October 14–17, 2020. The research papers presented were carefully reviewed and selected from several initial submissions. The book is directed



to the researchers and scientists engaged in various fields of intelligent systems.

### **A Performance Analysis of Machine Learning Techniques in Stock Price Prediction** Springer Nature

Explore effective trading strategies in real-world markets using NumPy, spaCy, pandas, scikit-learn, and Keras Key FeaturesImplement machine learning algorithms to build, train, and validate algorithmic modelsCreate your own algorithmic design process to apply probabilistic machine learning approaches to trading decisionsDevelop neural networks for algorithmic trading to perform time series forecasting and smart analyticsBook Description The explosive growth of digital data has boosted the demand for expertise in

trading strategies that use machine learning (ML). This book enables you to use a broad range of supervised and unsupervised algorithms to extract signals from a wide variety of data sources and create powerful investment strategies. This book shows how to access market, fundamental, and alternative data via API or web scraping and offers a framework to evaluate alternative data. You'll practice the ML workflow from model design, loss metric definition, and parameter tuning to performance evaluation in a time series context. You will understand ML algorithms such as Bayesian and ensemble methods and manifold learning, and will know how to train and tune these models using pandas, statsmodels, sklearn, PyMC3, xgboost,

lightgbm, and catboost. This book also teaches you how to extract features from text data using spaCy, classify news and assign sentiment scores, and to use gensim to model topics and learn word embeddings from financial reports. You will also build and evaluate neural networks, including RNNs and CNNs, using Keras and PyTorch to exploit unstructured data for sophisticated strategies. Finally, you will apply transfer learning to satellite images to predict economic activity and use reinforcement learning to build agents that learn to trade in the OpenAI Gym. What you will learn

Implement machine learning techniques to solve investment and trading problemsLeverage market, fundamental, and alternative data to research alpha factorsDesign and fine-

tune supervised, unsupervised, and reinforcement learning modelsOptimize portfolio risk and performance using pandas, NumPy, and scikit-learnIntegrate machine learning models into a live trading strategy on QuantopianEvaluate strategies using reliable backtesting methodologies for time seriesDesign and evaluate deep neural networks using Keras, PyTorch, and TensorFlowWork with reinforcement learning for trading strategies in the OpenAI GymWho this book is for Hands-On Machine Learning for Algorithmic Trading is for data analysts, data scientists, and Python developers, as well as investment analysts and portfolio managers working within the finance and investment industry. If you want to perform efficient algorithmic trading by

developing smart investigating strategies using machine learning algorithms, this is the book for you. Some understanding of Python and machine learning techniques is mandatory.

### *Deep Learning*

This paper presents a computational approach for predicting the S&P CNX Nifty 50 Index. A neural network based model has been used in predicting the direction of the movement of the closing value for the next day of trading. The model presented in the paper also confirms that it can be used to predict price trend of the stock market. After studying the various features of the network model, a suitable model for stocks forecast is proposed. The model has used the preprocessed data set of

closing value of S&P CNX Nifty 50 Index. The training data set encompasses the trading days from 1st January, 2010 to 30th November, 2011. The test data set encompasses the trading days from 1st January, 2011 to 31st December, 2011. Accuracy of the performance of the neural network is compared with buy and hold return of the index. The model generated returns of 59.84% against buy and hold return of -26.08%. The average accuracy of target forecasting is found to be 82%.

### A Robust Predictive Model for Stock Price Prediction Using Deep Learning and Natural Language Processing

This book presents the modelling possibilities of neural networks on a complex real-world problem, i.e. credit rating process modelling. Current

approaches in credit rating modelling are introduced, as well as the incorporation of previous findings on corporate and municipal credit rating modelling. Based on this analysis, the model is designed to classify US companies and municipalities into credit rating classes. The model includes data pre-processing, the selection process of input variables, and the design of various neural networks' structures for classification.

Proceedings of the International Conference on Soft Computing for Problem Solving (SocProS 2011) December 20-22, 2011

This book constitutes the refereed proceedings of the 18th International Conference on Engineering Applications of Neural Networks, EANN 2017, held in

Athens, Greece, in August 2017. The 40 revised full papers and 5 revised short papers presented were carefully reviewed and selected from 83 submissions. The papers cover the topics of deep learning, convolutional neural networks, image processing, pattern recognition, recommendation systems, machine learning, and applications of Artificial Neural Networks (ANN) applications in engineering, 5G telecommunication networks, and audio signal processing. The volume also includes papers presented at the 6th Mining Humanistic Data Workshop (MHDW 2017) and the 2nd Workshop on 5G-Putting Intelligence to the Network Edge (5G-PINE).

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