**LITERATURE SURVEY**

# 1)Stock Market Prediction Performance of Neural Networks: A Literature Review," International Journal of Economics andFinance,

# AUTHORS: O. Ican and T. B. Qelik

# In this paper, previous studies featuring an artificial neural networks based prediction model have been reviewed. The main purpose of this review is to examine studies which use directional prediction accuracy (also known as hit ratio) or profitability of the model as a benchmark since other forecast error measures - namely mean absolute deviation (MAD), root mean squared error (RMSE), mean absolute error (MAE) and mean squared error (MSE) - have been criticized for the argument that they are not able to actually show how useful the prediction model is, in terms of financial gains (i.e. for practical usage). In order to meet the publication selection criteria mentioned above, a large number of publications have been examined and 25 of papers satisfying the criteria are selected for comparison. Classification of the eligible papers are summarized in a table format for future studies.

# 2, Applied Predictive Modelling, Michigan, USA: Springer,

# AUTHORS: M. Kuhn and K. Johnson,

# It has been recognized that wildfire, followed by large precipitation events, triggers both flooding and debris flows in mountainous regions. The ability to predict and mitigate these hazards is crucial in protecting public safety and infrastructure. A need for advanced modeling techniques was highlighted by re-evaluating existing prediction models from the literature. Data from 15 individual burn basins in the intermountain western United States, which contained 388 instances and 26 variables, were obtained from the United States Geological Survey (USGS). After randomly selecting a subset of the data to serve as a validation set, advanced predictive modeling techniques, using machine learning, were implemented using the remaining training data. Tenfold cross-validation was applied to the training data to ensure nearly unbiased error estimation and also to avoid model over-fitting. Linear, nonlinear, and rule-based predictive models including naïve Bayes, mixture discriminant analysis, classification trees, and logistic regression models were developed and tested on the validation dataset. Results for the new non-linear approaches were nearly twice as successful as those for the linear models, previously published in debris flow prediction literature. The new prediction models advance the current state-of-the-art of debris flow prediction and improve the ability to accurately predict debris flow events in wildfire-prone intermountain western United States.

**3)** **Pattern Recognition and Machine Learning, New York, USA: Springer**

**AUTHORS** **: C. M Bishop**

he dramatic growth in practical applications for machine learning over the last ten years has been accompanied by many important developments in the underlying algorithms and techniques. For example, Bayesian methods have grown from a specialist niche to become mainstream, while graphical models have emerged as a general framework for describing and applying probabilistic techniques. The practical applicability of Bayesian methods has been greatly enhanced by the development of a range of approximate inference algorithms such as variational Bayes and expectation propagation, while new models based on kernels have had a significant impact on both algorithms and applications.

This completely new textbook reflects these recent developments while providing a comprehensive introduction to the fields of pattern recognition and machine learning. It is aimed at advanced undergraduates or first-year PhD students, as well as researchers and practitioners. No previous knowledge of pattern recognition or machine learning concepts is assumed. Familiarity with multivariate calculus and basic linear algebra is required, and some experience in the use of probabilities would be helpful though not essential as the book includes a self-contained introduction to basic probability theory.

# 4: "Feature selection for stock market analysis," International conference on neural information processing

# AUTHORS : Y. He, K. Fataliyev, and L. Wang

The analysis of the financial market always draws a lot of attention from investors and researchers. The trend of stock market is very complex and is influenced by various factors. Therefore to find out the most significant factors to the stock market is very important. Feature Selection is such an algorithm that can remove the redundant and irrelevant factors, and figure out the most significant subset of factors to build the analysis model. This paper analyzes a series of technical indicators used in conventional studies of the stock market and uses various feature selection algorithms, such as principal component analysis, genetic algorithms, and sequential forward search, to find out the most important indicators.

# 5) "Predicting the direction of stock market prices using tree-based classifiers". The North American Journal of Economics and Finance,

# AUTHORS: S. Basak, S. Kar, S. Saha, L. Khaidem, and S. R. Dey.

# Predicting returns in the stock market is usually posed as a forecasting problem where prices are predicted. Intrinsic volatility in the stock market across the globe makes the task of prediction challenging. Consequently, forecasting and diffusion modeling undermines a diverse range of problems encountered in predicting trends in the stock market. Minimizing forecasting error would minimize investment risk. In the current work, we pose the problem as a direction-predicting exercise signifying gains and losses. We develop an experimental framework for the classification problem which predicts whether stock prices will increase or decrease with respect to the price prevailing n days earlier. Two algorithms, random forests, and gradient boosted decisio‘n trees (using XGBoost) facilitate this connection by using ensembles of decision trees. We test our approach and report the accuracies for a variety of companies as improvement over existing predictions. A novelty of the current work is about the selection of technical indicators and their use as features, with high accuracy for medium to long-run prediction of stock price direction.