



# Artificial Intelligence in Stock Market for Prediction

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**Abstract:** AI (Artificial Intelligence) has advanced since the investors of stock market began using its total potential in stock prediction and evaluation. People believe that AI technology will be used at a larger scale in financial market speculation. The market exchange of shares and equities is the most volatile and most dynamic. The volatile behavior of stock market makes the traders more confusing and difficult to predict the pattern of a particular stock, and make decision to buy or sell those stocks as the probability of losing or acquiring stock is 50-50. AI helps to create a pattern to predict the technical pattern of trading as it evaluates company's financial features such as i.e. price to earning ratio, business loans, current market position, market history, total number of investors etc. that will help to earn profit in long term. This requires greater computational power and study in different areas which is why it is widely accepted in recent years. This paper tries to study of coming up of AI predictions to identify trading patterns which related internally with Larger Frequency Trading based on pre-predicted criteria.

**Index Terms - Artificial Intelligence, stock market trends financial market, technology.**

## I. INTRODUCTION

Artificial Intelligence can study of volatile nature of the user inputs that can give you a path way to achieve your goals. AI is actually a science that associate machine language with Human minds for learning problem solving theories e.g. Speech recognition, Self-Driving Cars, Analyzing Complex data and producing charts or to make decisions relate to business or finance. In day to day life e-commerce websites collect the data from user input from different applications and create a model for individual and show them ads related to their search history or interest so that user could buy their products as soon as possible.

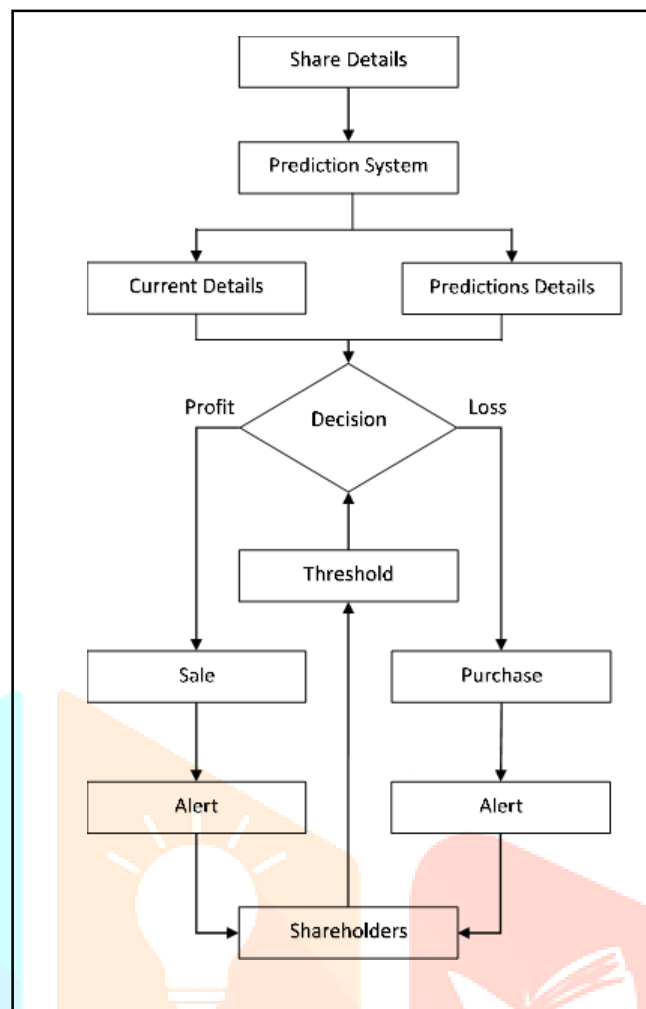
Stock market is a most unpredictable market where prices of stocks varies everyday depending on events that takes place in real world. Prediction in stocks is a tough task because the do's and don'ts are very relevant aspects in these connections. Making profit in stock market is actually now possible with the use of AI, research may try to find different connections in financial data and also can study the history of a particular stock and can generate the good decision on the basis of available results.

As a stock trader it's hard task to totally rely upon Artificial Intelligence for the prediction of stocks. Trading in stocks can be computed with financial business out of the resources available that are based truly on financial data. Human emotions such as fear of loss, greed to earn more and threat shall never play any type of role while predicting trends in stock market, in case of AI it uses algorithmic approach for developing a package based on previous data analysis and the predictions to be more precise. The analysis of the data using AI is trending only because of Human dependency on use of Machine, possibilities of acquiring more and more profits in stock market is limitless as individuals are using algorithmic trend predicted by AI.

The accuracy of prediction in several industries are also using the for making important decision. Steven Gjerstad (Purdue) in his paper "Risk Aversion, Beliefs and Prediction Market Equilibrium", has Studied that prediction market price are very close to the belief of participants that is if the agents are respond and the distribution of belief is spread out

## II. PREDICTING STOCK MARKET WITH ARTIFICIAL INTELLIGENCE

In Artificial Intelligence an important concept is genetic algorithm, such algorithms produce successive generation of software entities by processing natural evolution, that are increasingly fit for intended purpose.



### III. STOCK PREDICTION CONCEPT

The market prediction goals can be the future stock price or the volatile behavior of stock prices or market trends. Predictions are of two types Dummy and Realtime predictions. In Dummy predictions we define few rules and predict the future prices of shares by calculating the average price. In Realtime predictions its compulsory developer should use the real time data to see current price of share of companies.

A unique algorithm is the one which makes forecasting for stock market on the basis of data of previous years as well as different parameters which can be combined and analysis of market trend and search to improve the accuracy of the predictions. Artificial Intelligence plays a vital role between stock market investors and prediction-based application, following are few of the AI based applications which are currently in market to predict the stock market on daily and weekly basis. Applications are as follows:



**Walnut Algorithms** is a French start-up based technology firm that focused on applying advances in data science and machine learning research in financial markets. Walnut Algorithms is combinations of advance machine learning algorithm and financial expertise to generate absolute return investment strategies. Initially cost to develop these algorithms was approx. \$446 thousand. They have developed a trading model which continuously learn and improve timely. The strategies are designed to identify meaningful pattern of financial markets, they scale over numerous assets globally and self-adapt the change in market conditions.



**Alpaca**, a California based Fintech start-up is building AI and database technology for financial trading. The company's platform is an API (Application Programming Interface) for stock trading that user can use to trade with algorithm, connect with applications and build services. In October 2020 Alpaca raised a \$10,000,000 series A round from Social Leverage, Spark Capital, Abstract Ventures and Portag3 ventures.



**Sentient Technologies** basically working on a trading platform which is companies has built billions of AI based traders and they have unique individual trader for distinct company. It was founded in 2007. Most of funding for this AI based application is from start-ups, Total Funding was \$174M. Sentient used a combination of deep learning, Bayesian techniques, and evolutionary algorithms at very large scale to create product that drive meaningful ROI.



**Binatix** is a deep learning trading firm that came out of stealth mode in 2014 and claims to be nicely profitable having used their strategy for well over three years. Little is known about the company other than what was published in this recode article back in 2014. Binatix is also said to be working with hedge fund that are developing and implementing investment strategies based on their technologies.

#### IV. PREDICTION ACCURACY

Prediction in market are accurate and successful, but there are many times the market fails in making right predictions or sometime making right decision one at all. An Australian Economist Friedrich Hayek says "Prediction markets are mechanism for collecting vast amount of information held by individuals and synthesizing it into a useful data point". An American Journalist James Surowiecki, "The Wisdom of Crowd", in which a group of people with a different opinion can collectively be cleverer than any individual

Information collection technique can also lead to failure to Prediction Market sometimes. People in this crowd are incorrect in their independent judgments due to peer pressure, panic and bias leads develop breakdown out of lack of diversity. Lack of knowledge in the crowd is one of the main constraints which leads to failure of crowd predictions. Marginal-traders hypothesis said that "there will always be individuals seeking out places where the crowd is wrong", in a way these individuals put the prediction market back to track when crowd fails a value could be incorrect. Prediction markets also fails at gaining tractions with researchers and the public they have only been successful in business and political market. Most of people are involved in prediction markets want a quick turnaround for right answer, an area where business and political questions excel.

Recently in ending of 2020, As Joe Biden becomes President on January 20, how should investors view the change in administration and the seating of a new Congress to help you better understand, investment leaders from U.S. Bank have reviewed policy positions laid out by the new leadership. 2020 was a wild year for stocks and bonds, where outside events often overshadowed more fundamental investment factors like corporate earnings. The stock market managed a solid gain, with major market indices reaching all-time highs in the closing weeks of the year. Crowd predictions were stock markets will gain a substantial growth came to be a true event.

#### V. CONCLUSION

Artificial Intelligence has advanced to a larger scale in 21st century, today companies are using AI to analyses human behavior for marketing strategies and to learn human behavior and interests. Companies wish to target advertising to consumers who are most susceptible to it, others want to use it to hire the most capable employees to help their company's success. In financial sector many companies are using same technology to predict the future of different stock trends. With the AI, predictions are easier for users and investors to realize their investment on time. It also helps in increasing one's public profile and providing reassurance to customers and suppliers. However, all the algorithmic processes are not transparent as others, each algorithm has its unique way design and purpose so we cannot completely rely on such methods as sometimes results may be different from reality..

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