

KERNEL GRANULAR SUPPORT VECTOR METHOD FOR ANALYZING STOCK MARKET ANALYSIS USING SUPERVISED MACHINE LEARNING

Dr. Shweta Chandrashekhar Dharmadhikari¹, Sudhir Sharma², Rajendar Kalvala³

¹Associate Professor, Information Technology, Pune Institute of Computer Technology, Survey No. 27, Near Trimurti Chowk, Dhankawadi, Pune – 411043. India.

²Assistant Professor, Department of CSE, Birla Institute of Applied Sciences, Bhimtal, Nainital, Uttarakhand-263136, India.

³Jr. Data Scientist, Cognitive Dots, 107A First floor ,Rd number 6, Addagutta , Western Hills, Samatha Nagar, Kukatpally, Hyderabad , Telangana-500090. India.

d.shweta18@gmail.com, sudhirsharma@birlainstitute.co.in, kalavala.rajendar@gmail.com.

ABSTRACT: Nowadays, Stock market is one the major role played in business and economical growth. Brokerage, Corporations, banking, business and industries are using share or stock market with high risk. This is revenues based complicated model. In this paper, we propose kernel granular support vector Stock method for analyzing stock market using supervised machine learning approach. These methods are very helpful for all types of user and compare the performance with existing models. This method is combination of support vector machine and granular computing model. The dataset is divided into granules with kernel space without changing data distribution. The efficiency is calculated by using scalable large dataset and performance is compared.

KEY TERMS: Support vector machine, Kernel granular support, machine learning, data distribution, stock market

INTRODUCTION

Support vector machine is an effective tool to solve pattern recognition, regression analysis and handwritten texts. This is hotspot of machine learning algorithms. The design of support vector model has convex quadratic programming with liner model and kernel function is used to measure the relative parameters. The dataset is created and analyzed by crux model and set of support vectors are created to measure hyper plane prediction. The quadratic problem can be analyzed by using gradient project method and reduce the computation time and operations cost. The following predefined case study models are available such as MUNIX, LOQO, Matlab Tools, QP ROUTINE, MINPUS, etc [1].

Stock market is one of easiest method and anybody can do the stock. It is purely depends time and internet based platform. User can make the investment and it is highly predictable platform. Machine learning is one of the tools and helps us to achieve the result. Stock market provides simple and efficient method to make commodities [2]. Companies can invest their share and raise the money to their firm. This exchange has company can sell and buy the product based on their availability. The exchange may be stock marketing, equity planners and investor from other nations. Buyers and trader are continuing the buying and selling their shares and gets keep track of the inputs [3].

In this case, the dataset as considers as major key element and each transaction it is increased in sizes. The trained dataset, kernel space and memory is taken into account and size the each computation time is $O(2^N)$. Here, N - represent number of training data, For a small training datasets, these methods are effective. This decomposition based problem so need to select support vector training and extent their contents [4][5]. In this paper we explain kernel granular support vector method for analyzing stock market analysis.

RELATED WORK

Linear regression model is used for analysing input data and identifying dependencies. Each relationship is analysed and it is common platform for studies of train the classifier. Kunal et al, suggested classifier is used to analyze the testing data and classifier results [6]. The accuracy factor is set by amount of data provided to the

classifier and their attributes is recorded. In machine learning model we have train the classifier and predict the values [7].

Hu Sheng Guo et al, support vector machine is provided kind of information with respect to granules and decision making process. This is rule based reasoning and each case can be verified and shows the results. The training process is improved and finds the performance which related to high dimensional space [8]. The dimension is measure by set of coordinate space and granules are measured by replacement each input. Kernel granular support vector has clustering, neural network, decision tree and high dimensional space reduction. This method has low and high dimensionality reduction [9].

The graph based stock exchange provides each outcome results and it is capable of analyzing all input values. The computational values and amount of time spend for measuring coordinate position is obtained. The amount of data is collected and interprets the pattern. The predicting the next value and estimate the transaction is tedious process. Now, the computer based analyse system is to simulate scientific and mathematical results [10].

PREDICTION MODEL

In this work, we propose kernel granular model and extracted dataset taken from Google. Kite is one of the leading online based stock exchange model. The following data attributes are taken such as opening stock price, instance value, lowest and highest cut off rates.

Attributes: Open/Close Rate, Bit price, Volumes

Adjacent Matrix parameter: Instance time, low and high graph, sell and buy marks

The following figure shows that the representation of stock values,



Figure 1: Share market value and representations

The dataset is represented as $X_n = \{x_1, x_2, \dots, x_n\}$ and i is belongs to \mathbb{R} mapping coordinates. The granules are represented by i th values and N is represented as number of granules. For applying kernel space in $m -$ dimension space,

$$K_m = (1/N) (\sum_{j=0}^{n-1} X(j, m))$$

So, the radius value is calculated as, $r = |r_{max_n} - r_{min_n}|$ which specifies $m -$ dimensional space coordinates.

The result is noted and input values processed. In this case the graph is generated with sampling coordinates. The data is gathered and collect stock values. We need to created open and close point for measuring status of each buy and sell points. The source information detects volume and capacity information each day.

$$S_i = (Close - Open) / High \times 100$$

The percentage helps to retain information and shape of the graph it varies. This case decision parameter can be set in stock price.

Training and Testing Phase

In this model, we extract data and implement by using machine learning model. We used Matlab and Softsign for train the model. The following points are considered for evaluating prediction and extraction value.

Case 1: Preprocess is done for selecting coordinate position and input label for measuring attribute parameters

Case 2: The given data frame is converted to array for storing buy and sell values.

Case 3: The data is calculated from classifier test data and train data

The prediction of supervised machine learning model the input data is modelled and feature is represented paired. We train the classifier data and track record of the all coordinates. The below graph is shows that the buying and selling points. Machine has to read the data and keep track the record. It shows the point increase and decrease values.

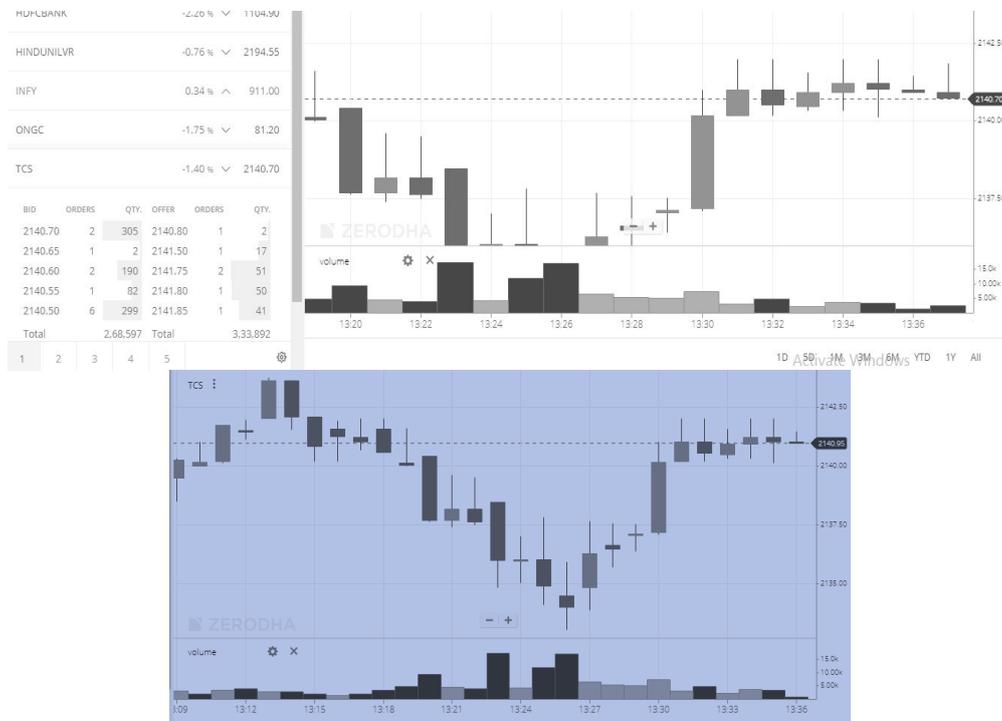


Figure 2: Stock mark representation of input points bids and volumes

PERFORMANCE EVALUATION

Here for our situation, the classifier sees the highlights and essentially sees its name and recollects that it. It recollects the blend of highlights and its particular name which for our situation is the stock value a couple of days after the fact. At that point it proceeds onward and realizes what example is being trailed by the highlights to create their individual mark. This is the secret administered AI works.

For testing in administered AI, we input a mix of highlights into the prepared classifier what's more, cross check the yield of the classifier with the genuine mark. This encourages us decide the precision of our classifier. Which is extremely essential for our model? A classifier with exactness under 95% is basically futile. Exactness is an extremely essential factor in an AI model. You should comprehend what precision implies and step by step instructions to expand your exactness on the following subtopic.

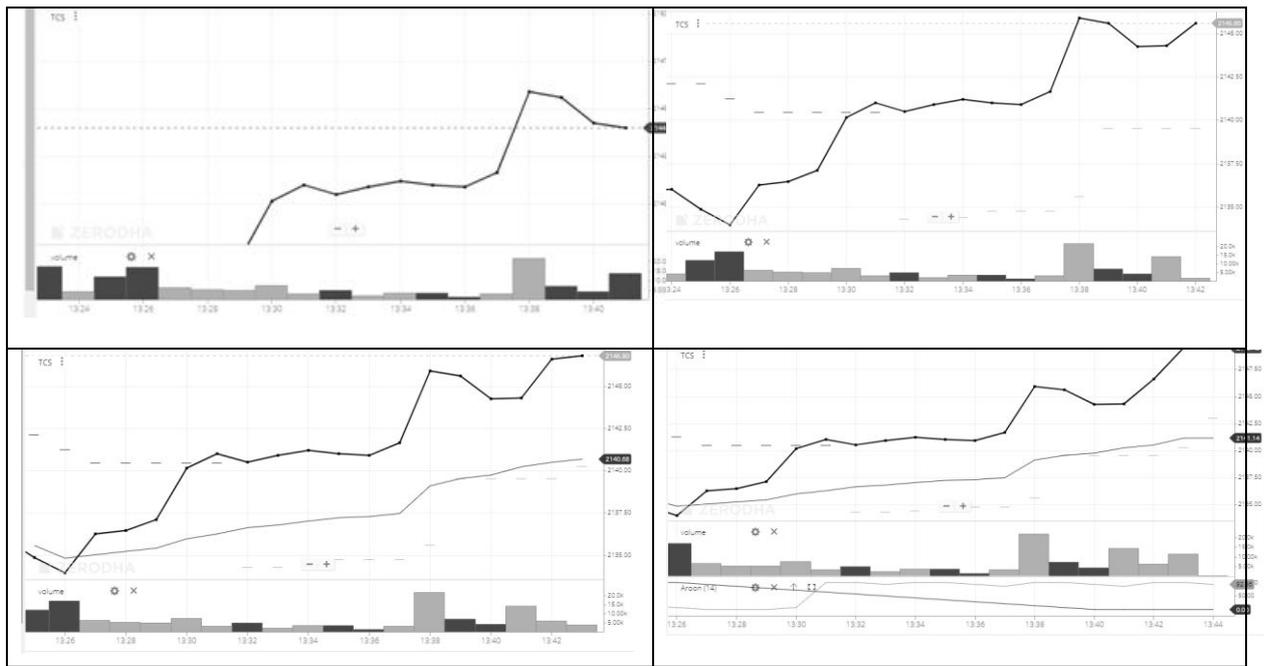


Figure 3: Machine learning characteristics in various kernel granular spaces

The key component of every result is the accuracy it delivers. It should be according to our needs and as stated earlier, a model with accuracy less than 95% is practically useless. There are some standard methods to calculate accuracy in machine learning, some are as follows: R2 value of the model, Adjusted R2 value, RMSE Value and Confusion matrix for classification problems.

Precision is the segment which each AI designer is constantly dedicated to contribute towards. After the model is created, there is limitless exertion towards improving the model to get an ever increasing number of exact outcomes. There are some normal and basic approaches to help the proficiency of your model, and have been talked about above.

Anyway let us take a gander at a portion of the standard ways to enhance an AI calculation: Unconstrained Optimization, Gradient Decent, Newton's Method , Batch Learning, Stochastic Gradient Decent, Compelled Optimization, Lagrange Duality, SVM in basic and Dual structures, Constrained Methods. The majority of the AI issues are, at long last, advancement issues, where we limit a capacity subject to certain limitations

Let us notice a portion of the normal errors made by professionals in this field, which you are required to dodge, Awful comment of preparing and testing datasets, Helpless comprehension of calculations' presumptions, Helpless comprehension of calculations' boundaries, Inability to get objective, Not understanding the information, Maintain a strategic distance from spillage (Features, data), Insufficient information to prepare the classifier, Utilizing AI where it isn't essential.

CONCLUSION

Machine learning is the process of read input from computing devices and processes it for effective decision. In this paper, we used kernel granular support vector Machine for predicting stock market and making good decision. This paper delivered a good input of machine learning algorithm and experimental results. The input model taken from kite dataset and analyze the performance using different characteristics. The user can predict the market statistics easily and trading done effectively. This paper is designed in supervised learning model with low and high dimensional values. In future some model can be suggested for deep learning implementations.

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