

Adhoc Theoretical Approach for Indian Premier League Matches

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Abstract: As the technology is increasing in our day to day life, it has taken place in sports also. From implying the rules correctly to, to predict the outcome of the match. This paper emphasise on the theoretical approach to predict the outcome of Indian Premiere League (IPL) matches. A Neural Network has been suggested to compare stats of a match like team, venue, pitch report etc., for the prediction of the outcome and predict which team will win the match. This theory also consider the star player of a team for the previous match and his stats with current playing team.

I. Introduction

Neural Network: Neural Network is a parallel computing devices, it makes the model of the brain like a machine. The main objective is made the neural network is to compute faster than the computational system.

Neural network is classified into three types

- Single layer feed forward Network.
- Multiple layer feed forward Network.
- Recurrence Network.

Single layer feed forward Network: It is the simplest form of neural network. The layer which consists of input layer and the output layer. In this network it cannot flow back to the output layer to the input layer.

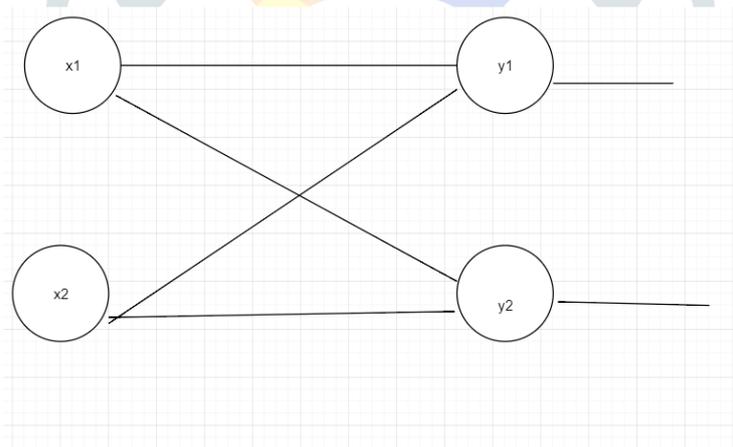


Figure 1: Single layer Neural Network

Multiple layer feed forward Network: It is the second form of feed forward network which is distinguished by a layer which is **hidden layer**. It is placed in between the input layer and the output layer of the network. In this network it cannot flow back to the output layer to the input layer.

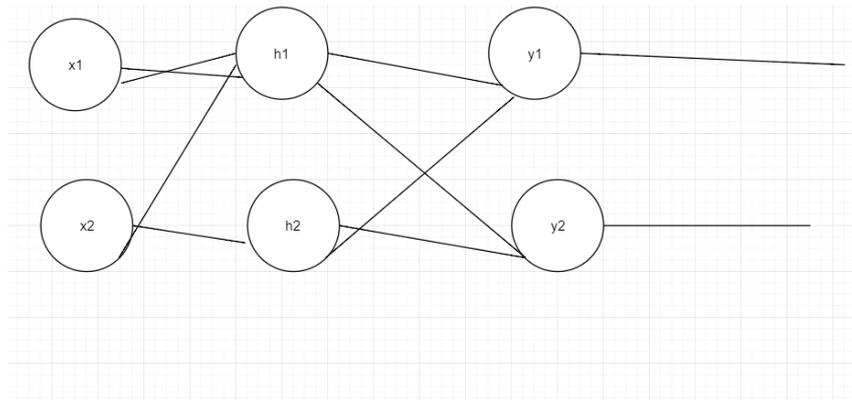


Figure 2: Multi-Layer Neural Network

Recurrence Network: Recurrence network is the third type of neural network which is distinguished by the feedback loop in the feed forward network.

E.g: A recurrence network consist of single layer of input and output with a clock signal back to the input about the output of the other neuron.

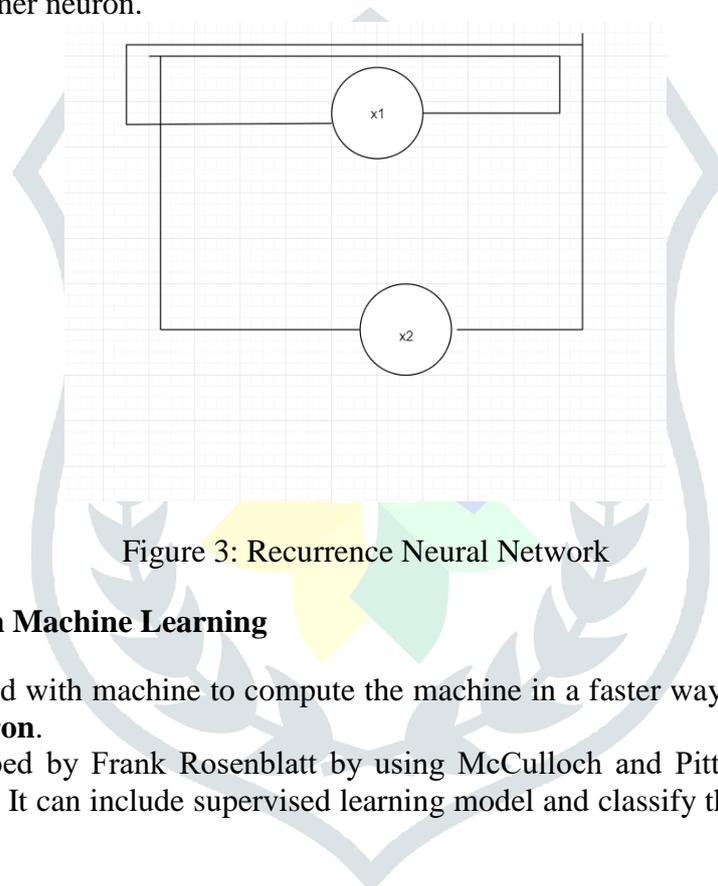


Figure 3: Recurrence Neural Network

II. Neural Network with Machine Learning

Neural network is clubbed with machine to compute the machine in a faster way. These thing can be done with the help of **perceptron**.

Perceptron: It is developed by Frank Rosenblatt by using McCulloch and Pitt's model. It acts as basic model of neural network. It can include supervised learning model and classify the data accordingly in two the classes [9].

Perceptron consist of three elements. These are:

- Links.
- Adder.
- Activation Function.

Links: It is a links between one nodes to another node. Its weight is 1.

Adder: It adds the input after the weights are multiplied with each other.

Activation Function: This is used for determine the outputs according with the Boolean value. If the value is 1 then it is positive, if it is 0 then it is negative.

Machine gets to learn to reach to the goal more accurately.

The best example to clubbed neural network with the machine learning is the prediction system.

III. Prediction system

Prediction System: It is a system with is predicting with past learning data and the data which is comes with the facts and logic is perfect or near perfect to the original data.

In India nowadays cricket prediction system is popular. Other than cricket, football, NBA, and hockey also popular in India. The other name of this system is fantasy site. The most popular site in fantasy site is Dream 11. It is the founded in 2015 and it is the first start up in India who reached 1 million mark in the recent times. In Dream 11 you can pick the best 11 players from both the teams and you can pick depends on the available credits with you [4].

IV. Need of prediction system

In the past we see that people are involved in betting case where two IPL teams will also found guilty in the year 2013 and serve two years ban and make comeback in the year 2018. People are like to predict the player on the basis of the best player on this wicket and who will be star performer of the match. Prediction is based on the past data on this wicket and the current form of the player which creates an impact on the game [6].

Player Selection is based on the following factors. These will be [10]:

- Venue of the match.
- Wicket of the match.
- Time of the match.

Venue of the match: This means that player's performance will depend on the venue. Any player must perform well on their home ground and the favourite grounds [11].

For e.g: In the BBL(Big Bash League) it is observed that Chris Lynn of the Brisbane Heat must score well and perform well in the Brisbane stadium and the graph of the performance of this player will decrease as well. The strike rate of Chris Lynn in the Brisbane it will be of 222.20 and in the other stadium it will decrease of 105 strike rate and the overall strike rate will be 157.

Wicket of the match: In the cricket wickets are defined in a certain category. These will be

1. Slow wicket: Here the wicket will be slow the ball pitch on the wicket and will change the speed of the ball and it takes time to come in the bat.
2. Bouncy Wicket: The pitch provides some bounce in the wicket and sometimes wicket must provide unexpected bounce to the batsman.
3. Batting friendly wicket: This wicket must support the batsman.
4. Bowling friendly wicket: The wicket must support the bowlers.

Time of the match: The match timing will change the game because sometimes the wickets will changed as compared with the opposite innings wickets it is done when some cracks are present in the pitch and the spinners in the first innings will get wickets as compared with the second innings. The dew is the factor for winning the game.

V. Working of the machine

Machine is work on the basis of experience and the past data which is analysed and give results. The data of each of the season i.e. domestic carrier, international carrier and the current form of that player. On the basis of neural network and the learning of the data it will take decision and after the match data is also feed and machine will analyse the original data and the predicted data from the match. This can effect on the next match prediction which is more accurately from the previous predicted data.

VI. Prediction data

Match 1

Teams: Chennai Super Kings vs Royal Challengers Bangalore[1].

Venue: MA Chidambaram stadium, Chennai [2].

Previous records of the stadium: In this stadium the past records is this stadium is always favouring the spinners and the left handed batsmen. It is a night match so dew factor can help the batsmen in the second innings. In cricket it is commonly said that, batsmen can win matches but bowler can win tournaments [3].

Match 2

Teams: Kolkata Knight Riders vs Sunrisers Hyderabad [1].

Venue: Eden Garden, Kolkata.

Previous Records of the stadium: In the past year the wicket supports the spinners and the spinner will always raise the voice in this wicket against the opponent team.

Pitch report of the match day: This wicket is a bit two paced and spin will play a big part. The average first innings average score at Eden Gardens is 175 and it would be a good score [5].

Star player of the match (predicted): David Warner, Johny Bairstow, Vijay Shankar, Nitish Rana, Andre Russell, Rashid Khan, and Shakib Al Hasan[5].

Match 3

Teams: Mumbai Indians Vs Delhi capital [1].

Venue: Wankhede stadium, Mumbai.

Previous records of the stadium: In this stadium, the pitch is made up of red soil and this pitch is comprises of little bit of bounce and it's a batsman friendly pitch.

Pitch Report of the match day: This pitch looks very dry and it might be helpful for the spinners. There is small covering of grass but that is there to hold the wicket together. Little bit of dew might come in late. Average score batting first here is 167 and today teams might need more than that .

Star player of the match (predicted): Rishab Pant, Colin Ingram, Yuvraj Singh, Michell Mcclenaghan, Shikhar Dhawan, and Kunal Pandya

Match 4

Teams: Rajasthan Royals Vs Kings XI Punjab.

Venue: Sawai Mansingh Stadium, Jaipur.

Previous records of the stadium: This pitch is a bouncy pitch where some bounce is present in this pitch where extra bounce is present on this pitch.

Pitch Report of the match day: This pitch looks very dry and it might be helpful for the spinners. There is small covering of grass but that is there to hold the wicket together. Little bit of dew might come in late. Average score batting first here is 167 and today teams might need more than that [12].

Star player of the match (predicted): Jos Buttler, Chis Gayle, Sarfaraz Khan, and Sanju Samson.

Match 5

Teams: Delhi Capital Vs Chennai Super Kings

Venue: Feroz Shah Kotla, Delhi.

Previous records of the stadium: In this stadium the past records is this stadium is always favouring the spinners and the left handed batsmen. It is a night match so dew factor can help the batsmen in the second innings. In cricket it is commonly said that, batsmen can win matches but bowler can win tournaments.

Pitch Report of the match day: This pitch looks very dry and it might be helpful for the spinners. There is small covering of grass but that is there to hold the wicket together. Little bit of dew might come in late. Average score batting first here is 167 and today teams might need more than that.

Star player of the match (predicted): Shikhar Dhawan, DJ Bravo, Shane Watson, Suresh Raina, MS Dhoni [8].

Match 6

Teams: Royal Challengers Bangalore Vs Mumbai Indians.

Venue: M.Chinnaswamy Stadium, Bangalore.

Previous records of the stadium: In this stadium the past records is this stadium is always favouring the batsmen. It is told by the cricket analysis that this pitch is the nightmare for the bowlers. It is a night match so dew factor can help the batsmen in the second innings. In cricket it is commonly said that, batsmen can win matches but bowler can win tournaments [7].

Pitch Report of the match day: This pitch looks very dry and it might be helpful for the spinners. There is small covering of grass but that is there to hold the wicket together. Little bit of dew might come in late. Average score batting first here is 175 and today teams might need more than that.

Star player of the match (predicted): Parthiv Patel, Virat Kohli, Moeen Ali, Hardik Pandya, Umesh Yadav, and Yuzvendra Chahal.

Match 7

Teams: Sunrisers Hyderabad vs Rajasthan Royals.

Venue: Rajiv Gandhi International Stadium, Hyderabad.

Previous records of the stadium: In this stadium the past records is this stadium is always favouring the spinners and the seamer. It is a night match so dew factor can help the batsmen in the second innings. In cricket it is commonly said that, batsmen can win matches but bowler can win tournaments.

Pitch Report of the match day: This pitch looks very dry and it might be helpful for the spinners. There is small covering of grass but that is there to hold the wicket together. Little bit of dew might come in late.

Star player of the match (predicted): David Warner, Johny Bairstow, Jos Butler, Sanju Samson, Rashid Khan, and Bhuvneshwar Kumar.

Match 8

Teams: Kings XI Punjab Vs Mumbai Indians.

Venue: IS Bindra Stadium, Mohali.

Previous records of the stadium: In this stadium the past records is this stadium is always favouring the spinners and the left handed batsmen. It is a night match so dew factor can help the batsmen in the second innings. In cricket it is commonly said that, batsmen can win matches but bowler can win tournaments.

Pitch Report of the match day: This pitch looks very dry and it might be helpful for the spinners. There is small covering of grass but that is there to hold the wicket together. Little bit of dew might come in late. Average score batting first here is 167 and today teams might need more than that.

Pitch Report of the match day: This pitch looks very dry and it might be helpful for the spinners. There is small covering of grass but that is there to hold the wicket together. Little bit of dew might come in late. Average score batting first here is 167 and today teams might need more than that.

Star player of the match (predicted): Kl Rahul, Quinton De kock, Chris Gayle, Mayank Aggarwal, M Ashwin, and Kunal Pandya.

VII. Conclusion

This prediction is based on the past data and the current form of each player who is participated in the IPL and the pitch is also changed in some of the venue. This is the prediction with the combination of the machine learning and the neural network. It can pick the best player from the squad and identify the star performer of the match.

VIII. References

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