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# Basic Introduction to Fake News Detection

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***Abstract: The present world is run around a lot of news, but the genunety of news we need to analyse. In this paper, we analyse what is fake news and what are the methods that is used for the processing of fake news. The fake news classification and analysis is a big task because it requires huge data and information processing knowledge. This paper provides a basic understanding of the fake news detection algorithm and also analyse various machine learning approaches.***
***Keywords: Fake news detection, Machine learning, Data mining.***

## I. INTRODUCTION

This paper is an introduction of our research topic. Before the talk about a fake news detection methods and algorithm need to analyse what are fake news, type of fake news how each type of fake one is processed. This paper is a basic introduction of fake news processing. Consider the example of covid 19 spread, Sometimes, the news that spread through various social media and web site also have negative shade that means may or may not be true. At the same time we also need to valuate two to three article for finding the gen unity of news that we heard. We know technologies are become advanced day by day, so, we need to update ourself with it. Also, the news and information that we here have many faces. Throughout this paper We are guiding you the step towards towards fake news detection strategies and methods. We can analyse the topic in four section. The first section provide what is fake news and its scientific definition and examples. The second section provides type of fake news, the third section explains the methods, and algorithms.

## II. FAKE NEWS ANALYSIS

### A. *What Is Fake News*

As a beginner, I need to move through the topic step by step manner. So from my observation the fake news is nothing but someone or something created a false data or information regarding something in order to mislead the reader for their needs.

### B. *Type Of Fake News*

Fake news is misleading information presented in the form of news with the aim of destroying the reputation of a person or an organization. There is a huge verity of fake news, that depend on the mode of transmission and nature of news.

*1)* One type of fake news is the ability to fool and may be misinterpreted as a fact. It does not necessarily cause negative effect may be just for an entertainment purpose.
*2)* Another one is a false content made by someone without any detailed study of that topic. It may be due to the unawareness of that person, that person may be a journalist or a social media influencer. That may or may not be focus on profit.
*3)* For example, sometimes on social media like YouTube we may read a headline or thumbnail with some news but while clicking it says something different from the heading.
*4)* Next one is purposeful doing something which cause misleading the information Next one is spreading false content along with real one which destroy the intention of real one.

### C. *Fake News Detection Method*

Based on the study of fake news detection method i found that fake news can be detected in different perspectives.

*a)* *Depending Upon the knowledge:* It focuses on the knowledge inside the content whether it is true or not. The analysis is based on the fact checking basis. We can further classify it as automatic (by human, expert)and manual(by various algorithms).
*b)* *Based on Syntax:* We can use syntax analysis method for fake news detection. That means Write the sentences into parse tree and further processing
*c)* Based on path- This model analyses the news on media by checking the path which spreading. The main feature of this method is build a time series with neural network(CNN/RNN). It also uses clustering methods like agglomeration with KNN.
*d)* *Predictive Model Based Method:* This method is based on the probability of outcome. The common predictive algorithms are fall under machine learning and deep learning.

## III. ALGORITHMS FOR FAKE NEWS DETECTION

### A. Logistic Regression

Logistic regression come under the regression model. It is a predictive model based technique. LR analyses the relationship between dependent variable, one independent variable and series of dependent variable. We can use one or more dependent or independent variable in order to predict outcome of some result. In shot a logistic regression is a classification method it will analyse and predict the value either true or not, that is a binary model. It is based on probability prediction and classification. For example whether the transaction successful or not in this case, we can use logistic regression model. There are three type of logistic regression model, binary ordinal, multinomial.

### B. Support Vector Machine Learning

Support vector is a machine learning approach. It follows supervised machine learning model. The SVM algorithm, we imagine data item are point n-dimensional space it represents value of a particular coordinate. The classification is based on hyperplane. Hyper-plane that differentiates the two classes very well.

### C. Multy Level Perceptron

Another classification algorithms used for the fake news detection are multilayer perceptron. Neural network based algorithm is more suitable for complicated tasks or for the complicated data classification. Neural network is a group of neurons associated with their weight. The multilayer perceptron classifies data based on MLP model that contains input layer and output layer in between number of hidden layers for filtering and classification. Other than input node uses nonlinear activation function. It uses back-propagation method for training neural network, run under supervised machine learning method.

### D. KNN

The KNN(k-nearest Neighbours)is a simple algorithm compare to other algorithms we discussed earlier. It is an easy way to implement a supervised machine learning method. We can uses it for both classification and regression. In these cases, the input contain the k closest training examples in data set. The output is based on nature of KNN, whether it is for regression or for classification. KNN will calculate the euclidean distance of each(k number of neighbours)and then choose the k nearest neighbour as per the euclidean distance. Then it tries to count the number of data in each section (category). Finally, it allocates the new data points to that category based on the maximum number of neighbours.

### E. Random Forest

Random forest is run under the supervised learning algorithm. it's almost like the choice tree. it's trained by the bagging method. The bagging method is that a mixture of learning models increases the general results of a system. used for both classification and regression. Random forest may be a way of averaging multiple deep decision trees, trained on different parts of an equivalent training set, for reducing the variance. Bagging cause better model performance because it decreases the variance of the model, with none change in bias. this suggests that while the predictions of one tree is very sensitive to noise on It's training set, the typical of the many trees aren't , as long because the trees aren't correlated. Simply training many trees on one training set would give strongly correlated trees bootstrap sampling may be a way of de-correlating the trees by showing them different training sets.

### F. LSTM

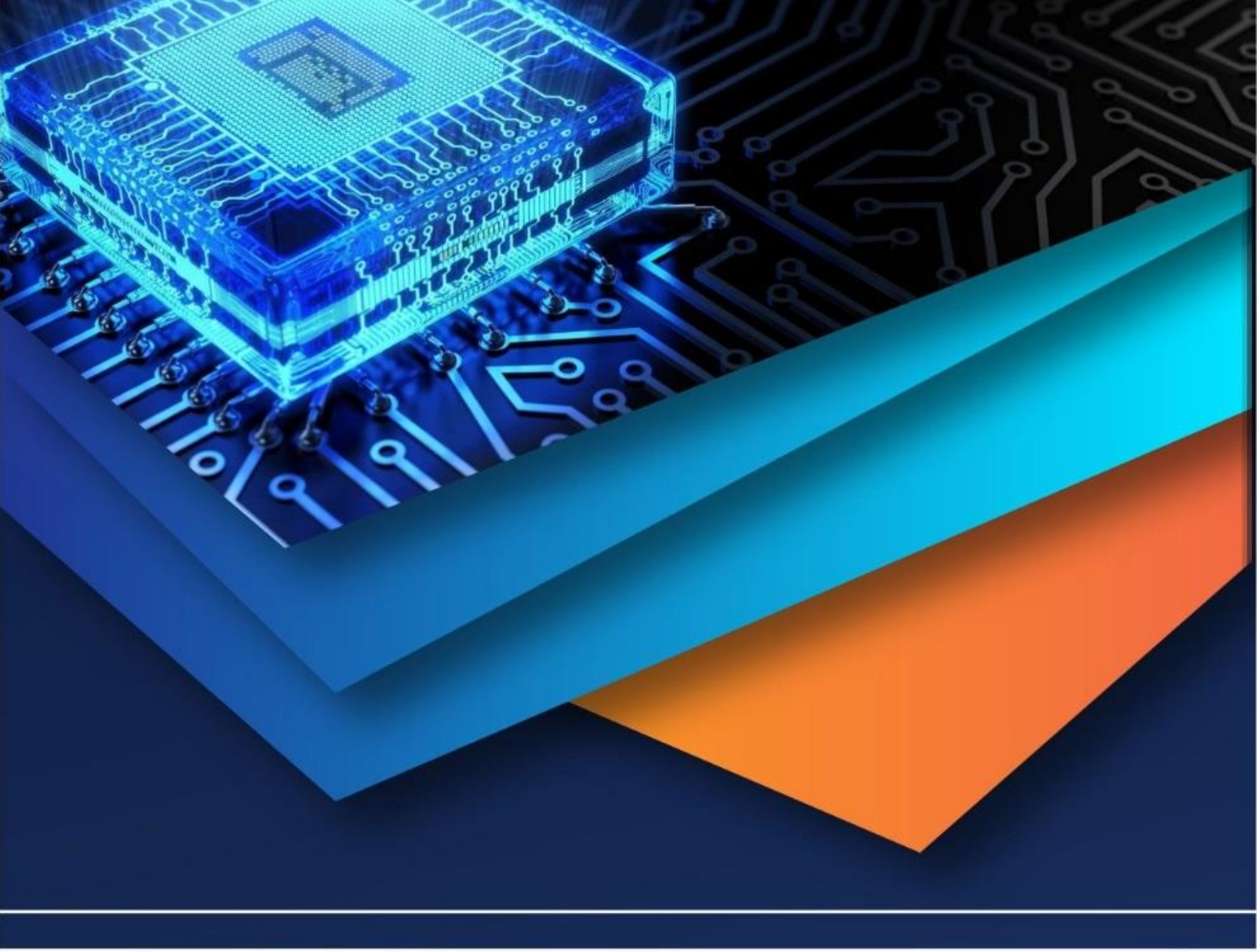
LSTM is the abbreviation of long short term memory. It will overcome the limitation of RNN. The main disadvantage of RNN is vanishing gradient problem. The RNN is used for short sequence and short time period, it is not suitable for long sequence and long time period. In order to overcome vanishing gradient problem LSTM is used. There are manly three part for LSTM forget gate, output gate, input gate. The LSTM process data in sequence manner. LSTM chain contains four neural networks and different memory blocks. Some information are may not be useful, so, they are removed by forget gate. Adding useful information into cell by input gate. The final step is filter out useful information from the current cell , and presented as an output is by output gate.

## IV. CONCLUSIONS

This paper is a basic introduction of fake news detection methods.i analyses what is fake news from different perspectives, what are the methods used for fake news analysis ans finally come up with various machine learning algorithms used for fake news detection.

## REFERENCES

[1] Akshay Jain" fake news detection" Department of Electronics and Communication Engineering Maulana Azad National Institute of Technology Bhopal, India
[2] Fake News Detection on Social Media: A Systematic Survey Mohamed K. Elhadad ,Kin Fun Li Fayez Gebali Dept. of Elec. and Comp. Eng. University of Victoria Victoria, Canada fayez@uvic.ca
[3] Shivam B. Parikh, Vikram Patil and Pradeep K. Atrey "On the Origin, Proliferation and Tone of Fake News "
[4] Hemant Kumar Gianey , Rishabh Choudhary "Comprehensive Review On Supervised Machine Learning Algorithms "
[5] Abdullah-All-Tanvir ,Ehesas Mia Mahir, Saima Akhter, Mohammad Rezwanul Huq "Detecting Fake News using Machine Learning and Deep Learning Algorithms" Dept. of Computer Science and Engineering



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