



# Survey of fake news detection using machine intelligence approach

Aishika Pal, Pranav, Moumita Pradhan\*

Information Technology Department, Dr. B C Roy Engineering College, Durgapur 713206, India



## ARTICLE INFO

### Keywords:

Machine learning  
 Fake news  
 Passive Aggressive Classifier  
 Naïve Bayes  
 Logistic Regression  
 Decision Tree  
 LSTM  
 BERT

## ABSTRACT

With the extensive spreading of all information through digital platforms, it is of maximal importance that each people get to differentiate between them. Fake news is a vast problem in our society we cannot predict which news is fake or real without having knowledge or proof of that particular news. This has become a supreme problem, so we decided to create a solution to this problem. Thus, we built a small model which helps in detecting fake news, where we are dealing with some articles which have been collected from the internet. We have labeled each of them as either fake or true. We have trained our dataset using these articles and have used different machine learning algorithms like Passive Aggressive Classifier, Naïve Bayes, Logistic Regression, Decision Tree, Long short term memory (LSTM), and Bidirectional Encoder Representations from Transformers (BERT) to compare the results. Our experimental result has achieved 99.6% accuracy from Decision Tree algorithm and obtained 99.8% recall from LSTM for detection of fake news. Passive Aggressive Classifier performs excellent on a large data set.

## 1. Introduction

With the advent of globalization and the rapid development of online platforms (including Facebook and Twitter), a good approach to information exchange has opened up that has never been ever seen in human history [1,2]. The propagation of false news also has a tremendous impact on the rest of the world. Fake news is also propagated via social media platforms such as Facebook and Twitter [3,4]. Our empowerment to create judgments is largely determined by the knowledge we absorb; our viewpoint is influenced by the information we consume. There is mounting evidence that people have responded irrationally to news that afterward proved to be false [5,6]. Our ability to make decisions is primarily impacted by the information we ingest; our perspective is influenced by the events we intake. People have reacted unreasonably to news that later turned out to be untrue, according to accumulating evidence.

This comprehensive machine learning (ML) based research article for identifying false news is concerned with both fake and genuine news [7]. Using the sklearn module, free python language-based ML library and term frequency inverse document frequency (TF-IDF) vectorizer, we can say about a token in our dataset. Then, we initialize ML models and fit the token. Here we have considered different ML models Passive Aggressive Classifier, Naïve Bayes algorithm, Logistic Regression, Decision Tree, LSTM and BERT.

In the end, the accuracy score and the confusion matrix tell us how well our model fares. This provides us an approximate value of our model, indicating if it is performing properly or not. After that, we can accept user input and determine whether it is phony or real [8,9].

This provides us an approximate value of our model, indicating if it is performing properly or not. After that, we can accept user input and determine whether it is phony or real [10]. Our remaining paper is organized in the form of the different types of

\* Corresponding author.

E-mail address: [pradhanmoumita17@gmail.com](mailto:pradhanmoumita17@gmail.com) (M. Pradhan).