**Aleena Marium:**

**1. Detection and veracity analysis of fake news via scrapping**

**and authenticating the web search**

**Abstract** :

Social media has become a part of our day-to-day life and has become one of the significant sources of information. Most of the information available on social media is in the form of images. This has given rise to fake news event distribution, which is misinforming the users. Hence, to tackle this problem, we propose a model which is concerned with the veracity analysis of information on various social media platforms available in the form of images. It involves an algorithm which validates the veracity of image text by exploring it on web and then checking the credibility of the top 15 Google search results by subsequently calculating the reality parameter (Rp), which if exceeds a threshold value, an event is classified as real else fake. In order to test the performance of our proposed approach, we compute the recognition accuracy, and the highest accuracy is compared with similar state-of-the-art models to demonstrate the superior performance of our approach.

**Conclusion:**

In this paper, we have developed a novel algorithm which can detect fake news events. Reality parameter per- formed best when its value is 40%, which give us 85% accu- racy with the number of links being 15. Furthermore, the match between a summary of content and the search query seems to range between 0 and 48%. During our experimen- tation, a problem was faced during text extraction from images as for some images; we were not able to extract the text correctly because of various image characteristics like text with shadowing effect. The proposed system

National news International news 0.26–0.80 0.46–0.86

addresses the fake news problem for both national and international news. The system seems to fail to classify local news, as the news does not get enough heat for major players to cover them.

Future work can be based on the improvement in the process of entity extraction for images text if the image is having a large amount of text, as this will directly affect the Google search results. Moreover, integration of various social media handler of credible media houses or newspa- pers for authentication of a news event with the current system might further improve the accuracy.

**2. A Novel Approach Towards Fake News Detection: Deep Learning Augmented with Textual Entailment Features**

**Abstract**

The phenomenal growth in web information has nourished research endeavours for automatic fact checking, or fake news and/or misinformation detection. This is one of the very emerging and challeng- ing problems in Natural Language Processing (NLP), Machine Learning (ML) and Data Science. One such problem relates to estimating the veracity of a news story, which is a complex and deep problem. The very recently released Fake News Challenge Stage 1 (FNC-1) dataset intro- duced the benchmark FNC stage-1: stance detection task. This task could be an effective first step towards building a robust fact checking system. In this paper, we correlate this stance detection problem with Textual Entailment (TE). We present the systems which are based on statistical machine learning (ML), Deep Learning (DL), and a combination of both. Empirical evaluation shows encouraging performance, outperforming the state-of-the-art system.

**Conclusion**

Detection of misinformation/fake news and fact checking is a very challenging and utmost task these days to mankind. In this paper, we try to mitigate this problem. The dataset released in Fake News Challenge for detecting fake news through stance detection serves this purpose. We relate this problem to TE as they are conceptually similar. We offer the systems which are based on ML, DL and combination of both. In ML, we foster the different TE-based features apply to different classifiers (SVM and MLP), and obtain remarkable results. In DL, we pose two models, one is USE based and the other one is the modified version of the USE model but augmented with TE based features. We make use of different performance measures i.e. FNC, overall F1, per class F1 score etc. Our proposed model outperforms the state-of-the-art system in FNC and F1 score, and F1 score of Agree class by the third DL model i.e. the model augmented with TE features. The system also outperforms the state-of-the-art F1 score of Disagree class by our SVM based model. In future we would like to: • enrich the propose models by incorporating many more lexical/syntactic/semantic based features and address the issues raised by the proposed models. • do more in-depth and rigorous error analysis of the previous three best participating systems to get more insights. • incorporate the external knowledge (i.e. world knowledge) into the existing system.

**3. FIND: Fake Information and News Detections using Deep Learning**

**Abstract**

Fake news detection is very difficult while its spread is simple and has vast repercussions. To tackle this problem we propose a model which detects fake information and news with the help of Deep Learning and Natural Language Processing. A Deep Neural Network on self scraped data set is trained and by using Natural Language Processing the correlation of words in respective documents is found and these correlations serve as initial weights for the deep neural network which predicts a binary label to detect whether the news is fake or not. In this work we have successfully used Recurrent Neural Network and Long Short-Term Memories and Grated Recurrent Units to test for classification. Tensorboard is used for implementation of the proposed framework and provide visualizations for the neural network. Confusion matrix and classification reports show that accuracy score of upto 94 percent can be achieved using LSTM model. The tradeoff is the increased time requirement. Since the fake news can be established based on the learning model, a good training set is mandatory. The results show that the proposed framework is able to adequately present accurate result.

**Conclusion**

The spread of fake news can adversely affect our lives. Hence, in order to detect fake news we have proposed a computational model. A huge dataset was gathered by scraping a lot of trusted sites. Data is preprocessed and NLP is applied [7] consisting of methods such as stop word removal, [8] lemmatization with customized part of speech tagging and [9] making embeddings. Word Index of the tokenized dataset is initialized as weights for the ANN. We have used RNN with LSTM units for creating and updating this neural network.

After training the NN, we will have word embeddings for all the n-grams given the training dataset. Adam is used for optimization instead of classical stochastic gradient descent to update weights and binary cross-entropy loss. In accordance with the observations, the RNN architecture with LSTM outperformed the implementation with GRU. Further, Adam Optimizer was used to reduce the loss carried by the model. We experimented to figure out the best model on a dataset of 20,000 news articles. LSTM model showed an accuracy of 94.3%, time of 1300 s/epoch and loss of 0.209 whereas GRU [15] model has 91.9% accuracy, time of 1000 s/epoch and loss 0.011.We use the better model as depicted by the accuracy results. The train : test ratio of 0.7:0.3 on 72,000 news articles, was used to get an accuracy of 99.04% with time of 4900 s/epoch and loss 0.1165. We further trained the model on all 72,000 [17] articles with time of 7050 s/epoch and loss 0.1028.

In future, we plan to host the algorithm on a server which automatically scrapes news and keeps retraining itself along with an interactive user interface.

**4.** **Fake News Detection on Social Media using K-Nearest Neighbor Classifier**

**Abstract**

Consumption of news from social media is gradually increasing because of it's easy to access, cheap and more attractive and it's capable to spread the “fake news”. The widespread of fake news has latent adverse impressions on people and culture. Some people spread wrong information on social media to get the attention or financial and political gain. We need to be smarter at the recognition of fake or real news. The unique feature of detecting fake news on social media that make current detection algorithms ineective or not appropriate. Thereafter is essential to consider secondary information. Secondary information may include social activities of user on social media. So, in this research work we are presenting a simple approach for detecting fake news on social media with the help of K-Nearest Neighbor classifier. We achieved a classification accuracy of this model approximate 79% tested against Facebook news posts dataset.

**Conclusion**

In recent years, misleading content is gradually increasing and their impact on the online user is getting worse. In this paper, we presented a specific frame to predict fake news on social media. Features selection from the datasets is the essential part of this process as this is used by data mining algorithm (K-Nearest Neighbor) to classify the news article on social media. In previous work, author used different data set[1] and when we compare our model to that our model accuracy much better. This approach achieved a maximum classification accuracy of 79%. In future, we will try to solve the fake news detection problem with the help of different classification algorithm and compare them to show the best classification technique.

**5. A Machine Learning Approach to Fake News Detection Using Knowledge Verification and Natural Language Processing**

**Abstract**

The term “fake news” gained international popularity as a result of the 2016 US presidential election campaign. It is related to the practice of spreading false and/or misleading information in order to influence popular opinion. This practice is known as disinformation. It is one of the main weapons used in information warfare, which is listed as an emerging cybersecurity threat.

In this paper, we explore “fake news” as a disinformation tool. We survey previous efforts in defining and automating the detection process of “fake news”.We establish a new fluid definition of “fake news” in terms of relative bias and factual accuracy. We devise a novel framework for fake news detection, based on our proposed definition and using a machine learning model.

**Conclusion**

In this paper we define fake news in the context of information warfare. We briefly study the socio-political implications of fake news and we investigate previous efforts in automating fake news detection. We find that the most promising framework for fake news detection uses a combination of source and fact verification and NLP analysis, and we propose a hybrid framework based on our previous work in automating incident classification.

**ADITI RAUT:-**

**1.Fake News Detection Using Sentiment Analysis**

**Abstract:-**

Social media is one of the most revolutionary in-ventions of the present times. With its own set of advantages

and disadvantages it is extremely essential for each one of us.

Today Fake News has become a major problem wreaking havoc

all over the world. Therefore building an algorithm with the

best possible accuracy will be a revelation and it will have a

massive impact on the social issues which are prevalent as well

as on the current political scenario. Social Media and online

news articles serve as a major source of news and for data for

people since it can be approached easily , has a subsidized costing

and is readily available-just a click away. However, it does have

several negative impacts too such as no check on the source or

authenticity and validity of the views being endorsed. Hence,

we have proposed a new solution for fake news detection which

incorporates sentiment as an important feature to improve the

accuracy. It also investigates the performance of proposed method

using three different data sets. Results show that proposed

solution performs well. Moreover, the comparison is also made

with other methods under this study.

Index Terms—Fake News, Naive Bayes, Random Forest, Cosine

similarity tf-idf, sentiment

Conclusion:-

With the mushrooming vogue of social media, more and

more people are continuously consuming news from social

media rather than the traditional media. However, the grow-

ing concern for us today is the proliferation of fake news,

which has strong negative impacts on individual users and the

society as a whole. Therefore this paper analyzes different

text preprocessing techniques and selects tf-idf with similarity

score as the best approach using accuracy as an evaluation

metric. Further it enriches the merged data set using sentiment

to increase the accuracy of fake news detection. The proposed

approach is evaluated using three data sets and found better

as compared to the approach without using tf-idf and cosine

similarity as text preprocessing technique.

2.. **Fake News Detection on Social Media: A Systematic Survey**

**Abstract :-**

These days there are instabilities in many societies

in the world, either because of political, economic, and other

societal issues. The advance in mobile technology has enabled

social media to play a vital role in organizing activities in favour

or against certain parties or countries. Many researchers see

the need to develop automated systems that are capable of

detecting and tracking fake news on social media. In this paper,

we introduce a systematic survey on the process of fake news

detection on social media. The types of data and the categories

of features used in the detection model, as well as benchmark

datasets are discussed.Index Terms—Fake News Detection, Social Media, Misinfor-mation, Disinformation, Mal-information

**Conclusion:-**

In this paper, we present a systematic survey on fake

news detection. Different forms of fake news are discussed:

misinformation, disinformation, and mal-information. We give

a general overview on the methodology that we follow in

conducting our survey. Some of the covered research papers

are introudced in details. Furthermore, the types of data in

news documents are summarized and the types of features that

could be extracted from each type are discussed. Moreover, the

most commonly used bench mark datasets are provided. It is

noticed that there is still a shortage in fake news detection

systems for non-English news. Also, there is a lack of work

done in making real-time detection systems. In addition, there

is not much research in big fake news data, as well as how

to minimize the feature vector size. In our current and future

work, we are investigating the impact of using semantic infor-

mation in enhancing the efficiency of the detection system,

and will make experimental comparison between different

classification techniques, with different datasets using different

evaluation metrics.

3.**A SMART SYSTEM FOR FAKE NEWS DETECTION USING MACHINE LEARNING**

Abstract:-

Most of the smart phone users prefer to read the news

via social media over internet. The news websites are publishing

the news and provide the source of authentication. The question

is how to authenticate the news and articles which are circulated

among social media like WhatsApp groups, Facebook Pages,

Twitter and other micro blogs & social networking sites. It is

harmful for the society to believe on the rumors and pretend to

be a news. The need of an hour is to stop the rumors especially in

the developing countries like India, and focus on the correct,

authenticated news articles. This paper demonstrates a model

and the methodology for fake news detection. With the help of

Machine learning and natural language processing, author tried

to aggregate the news and later determine whether the news is

real or fake using Support Vector Machine. The results of the

proposed model is compared with existing models. The proposed

model is working well and defining the correctness of results upto

93.6% of accuracy.

Conclusion:-

It is significant to find the accuracy of news which is available

on internet. In the paper, the components for recognizing Fake

news are discussed. A mindfulness that not all, the fake news

will propagate via web-based networking media. Currently, to

test out the proposed method of Naïve Bayes classifier, SVM,

and NLP are used. In future, ensuing algorithm may provide

better results with hybrid approaches for the same purpose

fulfilment. The mentioned system detects the fake news on the

based on the models applied.

4.**Fake News Detection Using A Deep Neural Network**

Abstract:-

The process of obtaining news from social media is

like double edged weapon. On one hand, it is easy to access, less

time consuming, user friendly, easily conveyable socially

relevant news, possibility for obtaining various perspective of a

single news and is being updated in every minute. On other

hand, news is being manipulated by various networking sites

based on private opinions or interest. Fake news is

misinformation or manipulated news that is spread across the

social media with an intention to damage a person, agency and

organization. Due to the dissemination of fake news, there is

need for computational methods to detect them. Fake news

detection aims to help users to expose varieties of fabricated

news. We can decide whether the news is solid or forged based

on formerly witnessed fake or real news. We can use various

models to access deceptive news in social media. Our

contribution is bifold. First, we must introduce the datasets

which contain both fake and real news and conduct various

experiments to organize fake news detector. We use Natural

Language Processing, Machine learning and deep learning

techniques to classify the datasets. We yield a comprehensive

audit of detecting fake news by including fake news

categorization, existing algorithms from machine learning

techniques.

Conclusion:-

Fake News Detection is the analysis of socially relevant data

to distinguish whether it is real or fake. In this project we

explored different Machine learning models like Naïve

Bayes, K nearest neighbors, Decision tree, Random forest

and Deep Learning networks like Shallow Convolutional

Neural Networks (CNN), Very Deep Convolutional Neural

Network (VDCNN), Long Short-Term Memory Network

(LSTM), Gated Recurrent Unit Network (GRU),

Combination of Convolutional Neural Network with Long

Short-Term Memory (CNN-LSTM) and Convolutional

Neural Network with Gated Recurrent Unit (CNN-LSTM).

We also explored the benefit of feature extraction, features

like n-gram, TF-IDF features were extracted and used in our

model. We also explored the effective of word embedding’s

and word2vec features in Deep Neural networks. We also

explored the use of select best and chi2 for feature

extraction in Machine learning model.

5. **Fake News Detection Using Naive Bayes Classifie**r

Abstract:-

— This paper shows a simple approach for fake

news detection using naive Bayes classifier. This approach was

implemented as a software system and tested against a data set

of Facebook news posts. We achieved classification accuracy of

approximately 74% on the test set which is a decent result

considering the relative simplicity of the model. This results may

be improved in several ways, that are described in the article as

well. Received results suggest, that fake news detection problem

can be addressed with artificial intelligence methods.

Conclusion:-

The research showed, that even quite simple artificial

intelligence algorithm (such as naive Bayes classifier) may

show a good result on such an important problem as fake news

classification. Therefore the results of this research suggest

even more, that artificial intelligence techniques may be

successfully used to tackle this import.

**Shraddha Chitte**

1. **Fake News Stance Detection using Deep Learning Architecture (CNN - LSTM)**

**Abstract :**

Society and individuals are negatively influenced both politically and socially by the widespread increase of fake news either way generated by humans or machines. In the era of social networks, the quick rotation of news makes it challenging to evaluate its reliability promptly. Therefore, automated fake news detection tools have become a crucial requirement. To address the aforementioned issue, a hybrid Neural Network architecture, that combines the capabilities of CNN and LSTM, is used with two different dimensionality reduction approaches, Principle Component Analysis (PCA) and Chi-Square. This work proposed to employ the dimensionality reduction techniques to reduce the dimensionality of the feature vectors before passing them to the classifier. To develop the reasoning, this work acquired a dataset from the Fake News Challenges (FNC) website which has four types of stances: agree, disagree, discuss, and unrelated. The nonlinear features are fed to PCA and chi-square which provides more contextual features for fake news detection. The motivation of this research is to determine the relative stance of a news article towards its headline. The proposed model improves results by ~4% and ~20% in terms of accuracy and F1-score. The experimental results show that PCA outperforms than Chi-square and state-of-the-art methods with 97.8% accuracy.

**Conclusion :**

This study proposed a fake news stance detection model, based on the headline and the body of the news irrespective of the previous studies which only considered the individual sentences or phrases. The proposed model incorporates principal component analysis (PCA) and chi-square with CNN and LSTM, in which PCA and chi-square extract the quality features which are passed to the CNN-LSTM model. First, we pass the non-reduced feature set with and without preprocessing to the neural network. Then the dimensionality reduction techniques are applied and the results are compared. PCA elevates the performance of the classifier for fake news detection as it removes the irrelevant, noisy, and redundant features from the feature vector. This process produces promising results by scoring up to 97.8% accuracy which is considerably better than the previous studies. It is pertinent to say that dimensionality reduction approaches can reduce the number of features while preserving the high performance of classifiers. Our future work entails: (a) validate the performance of our proposed model on larger datasets, (b) A tree-based learning may perform better than simple approaches, (c) different textual features and their fusion shall be analyzed to boost the performance.

1. **EMET: EMBEDDINGS FROM MULTILINGUAL-ENCODER TRANSFORMER FOR FAKE NEWS DETECTION**

**Abstract :**

In the last few years, social media networks have changed human life experience and behavior as it has broken down communication barriers, allowing ordinary people to actively produce multimedia content on a massive scale. On this wise, the information dissemination in social media platforms becomes increasingly common. However, misinformation is propagated with the same facility and velocity as real news, though it can result in irreversible damage to an individual or society at large. Solving this problem is not a trivial task, considering the reduced size of the text messages usually posted on these communication vehicles. This paper proposes an end-to-end framework called EMET to classify the reliability of small messages posted on social media platforms. Our method leverages text-embeddings from multilingual-encoder transformers that take into consideration the semantic knowledge from preceding trustworthy news and the use of the reader’s reactions to detect misleading content. Our findings demonstrated the value of user interaction and prior information to check social media post’s credibility.

**Conclusion :**

The problem of fake news detection can involve information on multiple domains, for instance, textual and visual. In this research, we worked only with textual data represented as signals, but all baselines also worked with multiple domains (text + images). Despite the challenge in comparing approaches working over different types of data, for the task of fake news detection, our results suggest that additional textual data provides more information and better results than visual clues, at least in current social media publications. In closing, we believe our presented method helps addressing the problem of fake news detection on social media platforms in a multilingual scenario. The EMET model achieved significant results on event-based publications, based on prior information and user interaction related to social media posts. For further studies, we will explore the addition of multidomain data since prior research demonstrated that it can boost the model performance. Different augmentation strategies along with the inclusion of the images as a side information also show promise for further refining decision-making.

1. **SENTIMENT AWARE FAKE NEWS DETECTION ON ONLINE SOCIAL NETWORKS**

**Abstract :**

Messages posted to online social networks (OSN) causes a recent stir due to the intended spread of fake news or rumor. This work aims to understand and analyse the characteristics of fake news especially in relation to sentiments, for the automatic detection of fake news and rumors. Based on empirical observations, we propose a hypothesis that there exists a relation between fake messages or rumours and sentiments of the texts posted online. We verify our hypothesis by comparing with the state-of-the-art baseline text-only fake news detection methods that do not consider sentiments. We performed experiments on standard Twitter fake news dataset and show good improvements in detecting fake news or rumor posts.

**Conclusion :**

We proposed a new hypothesis that the use of emotional words is beneficial in sentiment-aware misinformation detection. We support the by proposing a novel sentiment-aware fake new detection algorithm and show improvement on a benchmark dataset over state-of-the-art algorithm that does not consider sentiment. The terrain of fake news and it’s detection remains a actively researched topic because it continues to evolve rapidly and yet to be fully understood. This gap presents opportunities for progressive work to be done in the area. Additional sources of sentiment extracted from, e.g., images, embedded text in the image and other visual media such as animations (GIFs) and videos may enhance model performance and is considered as future work.

1. **FAKEDETECTOR: Effective Fake News Detection with Deep Diffusive Neural Network**

**Abstract :**

In recent years, due to the booming development of online social networks, fake news for various commercial and political purposes has been appearing in large numbers and widespread in the online world. With deceptive words, online social network users can get infected by these online fake news easily, which has brought about tremendous effects on the offline society already. An important goal in improving the trustworthiness of information in online social networks is to identify the fake news timely. This paper aims at investigating the principles, methodologies and algorithms for detecting fake news articles, creators and subjects from online social networks and evaluating the corresponding performance. This paper addresses the challenges introduced by the unknown characteristics of fake news and diverse connections among news articles, creators and subjects. This paper introduces a novel gated graph neural network, namely FAKEDETECTOR. Based on a set of explicit and latent features extracted from the textual information, FAKEDETECTOR builds a deep diffusive network model to learn the representations of news articles, creators and subjects simultaneously. Extensive experiments have been done on a real-world fake news dataset to compare FAKEDETECTOR with several state-of-the-art models.

1. **MYTHYA: Fake News Detector, Real Time News Extractor and Classifier**

**Abstract :**

Fake news is a kind of exploitative journalism which is completely deprived of facts. It spreads disinformation, lies or hoaxes by means of traditional print media, televisions or radio media and nowadays through social media. The spreading of fake news on social media has changed the course of elections and thus impacted the future. Automating fake news detection is essential to maintain the integrity of news and journalism. In this Paper, a system that uses Gradient Boosted Decision Tree and Convolutional Neural network is provided to detect the stance of the news headlines and classify them as real or fake. By combining these two models systems gets the accuracy of 97.59%.

**Conclusion :**

This system is another approach for tackling the fake news problem on social media by automating the detection process. The system uses two different machine learning algorithms i.e, Gradient Boosted Decision Tree (GBDT) and Convolutional Neural Network(CNN) to find alternate facts and classify it into true or false. The system gives an accuracy of 97.59% when combined both these models. This system can be integrated with different social media websites and applications as a filter for fake news. Hence resulting only true content reaching to the users and thus have a good impact on our society. Parallel processing also might improve the efficiency of the system.

**Ruchika Navandar**

1. **Fake News Detection Using Machine Learning approaches: A systematic Review**

**Abstract:**

The easy access and exponential growth of the information available on social media networks has made it intricate to distinguish between false and true information. The easy dissemination of information by way of sharing has added to exponential growth of its falsification. The credibility of social media networks is also at stake where the spreading of fake information is prevalent. Thus, it has become a research challenge to automatically check the information viz a viz its source, content and publisher for categorizing it as false or true. Machine learning has played a vital role in classification of the information although with some limitations. This paper reviews various Machine learning approaches in detection of fake and fabricated news. The limitation of such and approaches and improvisation by way of implementing deep learning is also reviewed.

**Conclusion:**

Although there is evident success in detection of fake news and posts using various Machine learning approaches. However everchanging characteristics and features of fake news in social media networks is posing a challenge in categorization of fake news . However the main characteristic feature of deep learning is to compute hierarchical features . With the implementation of deep learning research and applications in recent past, lots of research works is going to implement deep learning methods, like convolutional Neural Networks , deep Boltzmann machine, Deep neural network and Deep autoencoder model , in various applications, like audio and speech processing , Natural language processing and modelling, information retrieval, objective recognition and computer vision, as well as multimodal and multi-task learning in categorization of news posts.

1. **Fake News Detection in Social Networks Using Machine Learning and Deep Learning: Performance Evaluation**

**Abstract:**

**Abstract—The problems related to fake news are growing**

**rapidly which results in misleading views on some information.**

Social media networks are one of the fastest medium to spread information by creating a huge impact on manipulating information by influencing readers in positive and negative aspects. This paper aims at evaluating and comparing different approaches that are used to mitigate this issue including some traditional machine learning approaches, such as Naive Bayes, and the popular deep learning approaches, such as hybrid CNN and RNN. The comparison is not only within traditional methods or within deep learning methods, but also across traditional and non-traditional methods. This paper lays a foundation for selecting a machine learning or deep learning method for problem solving regarding the balance between accuracy and lightweightness. Index Terms—Fake News Detection, Deep Learning, Machine Learning, Natural Language Processing, Social Media

**Conclusion:**

In this paper, we studied various types of fake news and categorized the related features. Some traditional machine learning approaches, such as clustering, Naive Bayes, etc., are evaluated for detection accuracy. Some other approaches, as well as the latest deep learning approaches, such as hybrid CNN and RNN, are also evaluated to compare the performance with the traditional machine learning methods. In the future, we will further study how to select a machine learning or deep learning method for problem solving regarding the balance between accuracy and lightweightness.

1. **Fake News Detection Using Deep Learning Techniques**

**Abstract:**

News is crucial part of our life. In day to day life current news are helpful to enhance knowledge what happen around the world. So most of peoples prefer watching news most of the peoples generally prefer reading newspaper early in the morning enjoying with cup of tea. If news is fake that will mislead peoples sometimes fake news utilized to spread rumors about things or it will affect some political leader positions just because of fake news. So it’s crucial to find the fake news. So we proposed system to detect fake news but now a day’s data on web

or social media is increasing vastly and it is so hectic to detect news is fake or not by looking all data and it is time consuming so we utilize classification techniques to classify huge data. Here we proposed fake news detection system based on classification such as Logistic regression (LR), Naïve bayes (NB), Support vector machine (SVM), Random forest (RF) and deep neural network (DNN). We compare all machine learning techniques for detecting fake news.

**Conclusion:**

Here we, present different algorithms for classifying statements made by public figures were implemented. In proposed system LR, RF, SVM NB and DNN classification techniques are utilized that will help to detect fake news. Classification techniques like LR, RF, SVM NB and DNN for feature selection and extraction utilized, DNN will work fine in execution time and accuracy cases but it needs large memory than other. Then we compare NB, RF, SVM, LR and

DNN on basis in terms of time and memory and accuracy, according to comparison results it exhibit that DNN Algorithm is improved than rest algorithm in accuracy and time kind because rest classifiers requires more time and gives less accuracy hence DNN is more crucial to detect the fake news.

1. **Detecting Fake News Articles**

**Abstract:**

Fake news has been generated and widely spread although journalists and researchers created fact-checking websites (e.g., Snopes and PolitiFact) and analyzed characteristics of fake news. To fill this gap, in this paper we focus on developing machine learning models based on only text information in news articles toward automatically detecting fake news. In particular, we proposed a framework which extracts 134 features and builds traditional known machine learning models like Random Forest and XGBoost. We also propose a deep learning based model (LSTM with self-attention mechanism) to see which one performs better in the fake news article detection in both political news and celebrity news domains. In the experiments, we compare our models against 7 baselines. The results show that our XGBoost model improved 16.4% and 13.1% over the best baseline in terms of accuracy in both political news articles and celebrity news articles, respectively.

**Conclusion:**

In this paper, we proposed a framework to automatically detect fake news articles. In particular, we extracted 134 hand selected features from each article. Our experiments showed that the XGBoost model outperformed the best baseline model, improving 16.4% in PolitiFact dataset and 13.1% in Gossip Cop dataset compared with the best baseline. Our LSTM- ATT model achieved competitive performance in the PolitiFact dataset. With the fine tuning, the XGBoost model achieved 85.5% accuracy and 86.6% accuracy in the PolitiFact and Gossip Cop datasets, respectively. In this study, we only focused on using text information in each news article. In the future, we will incorporate additional information from social media content and spatiotemporal data for higher accuracy and early detection.

1. **Supervised Learning for Fake News Detection**

**Abstract:**

A large body of recent works has focused on understanding and detecting fake news stories that are disseminated on social media. To accomplish this goal, these works explore several types of features extracted from news stories, including source and posts from social media. In addition to exploring the main features proposed in the literature for fake news detection, we present a new set of features and measure the prediction performance of current approaches and features for automatic detection of fake news. Our results reveal interesting findings on the usefulness and importance of features for detecting false news. Finally, we discuss how fake news detection approaches can be used in the practice, highlighting challenges and opportunities.

**Conclusion:**

Fact checking is a damage control strategy that is both essential and not scalable. It might be hard to take out the human component out of the picture any time soon, especially if these news regard sensitive subjects such as politics. In the case of social networks and search

engines, predictions made by models for fake news detection could be used internally to limit the audience of news stories likely to be fake. This is why automatic labeling of news stories

raises so many questions about fairness and algorithm transparency, suggesting that it is likely that the final call will still depend on an expert at the end point for a long time. On the bright side, automatic fake news detection could be used by fact checkers as an auxiliary tool for identifying content that is more likely to be fake. Our results show that the prediction performance of proposed features combined with existing classifiers has a useful degree of discriminative power for detecting fake news. Our best classification results can correctly detect nearly all fake news in our data, while misclassifying about 40% of true news, which is already sufficient to help fact checkers. In this context, providing explanations that supported the algorithm’s output is crucial. For example, a certain story was considered false because it was posted by new newspaper hosted in the same IP address than a known blacklisted fake news source. Additionally, this kind of approach requires a continual pipeline where more stories get labeled each day and are, in turn, fed back to the models. Rather than verifying only the most suspicious stories, an active learning solution can be put in place, so that the model can also indicate which stories should be investigated in order to improve its prediction performance. More importantly, fake news is a relatively recent problem and the cost to label large datasets is still very high. In the future, larger volumes of labeled data will enable us to explore other techniques such as deep learning and push the boundaries of prediction performance.