EFFICIENT PREDICTION OF VULNERABILITY IN TWITTER USING ALEXNET IN COMPARISON OVER RESNET WITH IMPROVED ACCURACY.

Nalluri chandrahas[1], C. Nelson Kennedy Babu[2*]

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Abstract

Aim: Efficient prediction of vulnerability in twitter using AlexNet in comparison over ResNet for improved accuracy.
Materials and Methods: The AlexNet (N=10) and ResNet Algorithm (N=10) are two algorithms used in 2 Groups. 20 samples for both algorithms are considered and accuracy in this work is evaluated.
Result and Discussion: Based on the results accuracy obtained is identified to be 98.0710% by AlexNet over the ResNet algorithm as 94.8%. Statistical significance difference between AlexNet algorithm and ResNet Algorithm is found to be $p<0.05$.
Conclusion: The vulnerability prediction in twitter using AlexNet is found to be better when compared with ResNet.

Keywords: Twitter, ResNet, Novel AlexNet, Rank Subsequent to grouping, False Data Injection Attack.

[1*]Research Scholar, Department of Computer Science and Engineering, Saveetha School of Engineering, Saveetha Institute of Medical and Technical Sciences,Saveetha University, Chennai, Tamilnadu, India, Pincode: 602105
[2*]Department of Computer Science and Engineering, Saveetha School of Engineering, Saveetha Institute of Medical and Technical Sciences, Saveetha University, Chennai, Tamilnadu, India, Pincode: 602105

1. Introduction

Broad exploration has been performed on the identification and relief of False data injection (FDI) assaults in digital actual frameworks space (He et al. 2020). The concept of false data injection attack (FDIA), the term sounds common, it specifically means the case when an attacker compromises sensor readings in such a tricky way that undetected errors are introduced into calculations of state variables and values. A taxonomy of the existing counter measures to defend against FDIA is provided. Evaluation metrics for FDIA detection are proposed and also highlight scarci. The impact of FDIA on a PdM framework is yet not investigated which persuades the exploration. In the instance of airplane motor PdM frameworks, FDIAs might result in the postponement of ideal upkeep and lead to mid-air motor disappointments which are horrendous. Current clients of PdM frameworks for airplane motor upkeep incorporate Pratt and Whitney, Rolls-Royce, Honeywell, General hardware and the US Air power (He et al. 2020; *2017 IEEE International Conference on Prognostics and Health Management (ICPHM): 19-21 June 2017* 2017). For instance, Bombardier's new jetliner utilizes a Pratt and Whitney turbofan motor that flaunted more than 5,000 sensors (Navathe et al. 2016). Controlled with the cutting edge DL calculations, this motor can foresee the future requests of the motor, perform changes, and accordingly save 15% of fuel use. Notwithstanding, the weakness of sensor-assaultments against such IoT furthermore ML-based motors is viewed as a test (Urbach and Röglinger 2018). The current sensor assault recognition arrangements in the IoT also digital actual framework space isn't adequate to address this issue because of the way that, when conveyed independently to the large number of sensors, the greater part of the current procedures experience the ill effects of adaptability issues and asset overheads as numerous IoT sensors are power and asset obliged. An assessment is proposed by chief mining plan in informal organizations, rank subsequent to grouping (RaC), from a staged bunching viewpoint (Sigholm 2019)). RaC exhaustively involves topological data and client conduct information in a two-stage approach. In the first stage, bunching, RaC utilizes the K-implies calculation to assess and choose a bunch of assessment pioneer up-and-comers based on topological data, which can reject ordinary clients. In the subsequent stage, positioning, RaC chooses assessment pioneers in view of the social conduct information of applicants (Sigholm 2019; Mode, Calyam, and Hoque 2020). Contrasted with customary methodologies, the two-stage strategy can diminish the complete number of clients for the later positioning stage, which diminishes the computational intricacy of client conduct investigation while distinguishing assessment pioneers (Sigholm 2019; Mode, Calyam, and Hoque 2020; Tichavský et al. 2017).

In Last 5 years, the Google Scholar has included more than 196 papers and the IEEE published more than 200 papers about vulnerability in twitter. The analysis of AlexNet Algorithm and ResNet Algorithm in high performance efficiency has been made using an experimental approach. This study opinion is the efficient prediction of vulnerability in twitter using a compershive of the vulnerability in twitter prediction to ResNet. The Accuracy of existing research is not properly existing in the system. The existence of the experiment is totally and the improvement of accuracy of a proposed algorithm system compared to the existing model by improving (Inman et al. 2005). To overcome these issues a AlexNet algorithm is implemented to improve vulnerability in twitter in a network by comparing the proposed one with a ResNet Algorithm.

Our institution is passionate about high quality evidence based research and has excelled in various domains (Vickram et al. 2022; Bharathiraja et al. 2022; Kale et al. 2022; Sumathy et al. 2022; Thanigaivel et al. 2022; Ram et al. 2022; Jothi et al. 2022; Anupong et al. 2022; Yaashikaa, Keerthana Devi, and Senthil Kumar 2022; Palanisamy et al. 2022). The research gap found here in this work is the accuracy in prediction of vulnerability in twitter. Now by the above two Machine Algorithms that their own advantages and disadvantages have been taken in the Current survey (Inman et al. 2005; Wason et al. 2020). On applying AlexNet Algorithm memory to the dataset followed by performing observations using ResNet and the results were plotted on a graph then the two techniques are compared. Based on the result, finally getting the best AlexNet algorithm proves to be better for prediction of vulnerability in twitter .

2. Materials and Methods

The research work is carried out in the Machine Learning laboratory lab at Saveetha School of Engineering, Saveetha Institute of Medical and Technical Sciences, Chennai. The sample size has been calculated using the GPower software by comparing both of the controllers in supervised learning. Two numbers of groups are selected for comparing the process and their result. In each group, 10 sets of samples and 20 samples in total are selected for this work. The pre-test power value is calculated using GPower 3.1 software (g

power setting parameters: statistical test difference between two independent means, α=0.05, power=0.80, Two algorithms (AlexNet and ResNet Algorithm) are implemented using Technical Analysis software. In this work, no human and animal samples were used so no ethical approval is required.

AlexNet Algorithm:

AlexNet is a convolutional neural organization that is 8 layers deep. It is a machine learning algorithm. A pre-trained form of the organization can be in stack prepared in excess of 1,000,000 pictures from the ImageNet data set (He et al. 2020). The pretrained organization can order pictures into 1000 item classes, like console, mouse, pencil, and numerous creatures.

Pseudocode AlexNet:

1: for out1 to outs1
2: for detection1 to out1
3: mark ← detection 1[6:]
4: class_uniq_id ← np.argmax(mark)
5: conf ← scores[class_id]
6: if conf > 0.5
7: x ← int(detection[0] * Width)
8: y ← int(detection[1] * Height)

ResNet Algorithm:

A remaining neural organization is a fake neural organization of a sort that expands on developments known from pyramidal cells in the cerebral cortex. Lingering neural organizations do this by using skip associations, or alternate routes to get around certain layers

Pseudocode ResNet:

1: if in_tensor is None
2: input = Input(shape ← input)
3: else
4: if not K.is_keras_tensor(input):
5: input ← Input(tensor←input_tensor, shape←input_shape)
6: else input ← input_tensor
7: if K.image_data_format() == 'channels_last' bn_axis ← 3
8: else:
9: bn_axis ← 1

Statistical analysis

SPSS software is used for statistical analysis of novel approaches on efficient prediction of vulnerability in twitter using AlexNet compared to ResNet with improved accuracy. The independent variable is AlexNet accuracy and the dependent variable is efficiency. The independent T test analyses are carried out to calculate the accuracy of the AlexNet for both methods.

3. Results

Below Table 1 shows the simulation result of the proposed AlexNet algorithm and the existing system ResNet were run at different times in the google colab with a sample size of 10. From the table, it was observed that the mean accuracy of the Machine learning Algorithms like AlexNet was 98.0710% and the ResNet algorithm was 94.8000%%.

The Mean, Standard Deviation and Standard Error Mean were calculated by taking an independent variable T test among the study groups (*2017 IEEE International Conference on Prognostics and Health Management (ICPHM): 19-21 June 2017* 2017). The AlexNet algorithm produces a significant difference than the ResNet algorithm with a value of 0.220 and effect size=1.612.

Table 2 represents the Mean of AlexNet algorithm which is better compared with the ResNet algorithm with a standard deviation of 1.31596 and 1.08115 respectively. From ResNet algorithm and ResNet algorithm in terms of mean and accuracy (*2017 IEEE International Conference on Prognostics and Health Management (ICPHM): 19-21 June 2017* 2017; IEEE Staff 2021). The mean results, the AlexNet (98.0710%) gives better accuracy than the ResNet algorithm (94.8 %). Figure 1 gives the comparison chart of ResNet accuracy. It is therefore, conclusive that AlexNet performs better than ResNet. The resultant plots are shown below in figure. The figure has been placed at the end of the paper (Silva and Capretz 2019).

4. Discussion

AlexNet and ResNet algorithms, the respective machine learning algorithms are implemented and compared for vulnerability in twitter Prediction to improve the accuracy by review prediction (Wagh, Das, and Damani 2019). From obtained results, it is concluded that the AlexNet algorithm provides better accuracy results compared to the ResNet algorithm. In this paper, a piece-wise RUL foreseeing approach is utilized in imagining the effect of assaults on the sensors, which plainly shows that the PdM framework is helpless to sensor assaults(IEEE Staff 2018). CNN based piecewise RUL expectation results show that exceptional measures should be taken while planning and taking on CNN-based PdM frameworks. For example, the cases are very delicate to the FDIA(Benavente-Peces, Ben Slama, and Zafar 2019). This gives a fascinating understanding into the connection among exactness and strength of the GRU network. It shows the

requirement for thinking about the relationship between the precision, versatility and arrangement length of a DL mode like GRU for this situation in the plan stage(Shinde and Girase 2015). Without a doubt, such an examination can fill in as an observational direction to the improvement of resulting information driven PdM frameworks (("Bulletin-and-Summary-of-Available-Documents-Summary-no13-Apr-1980-23-Pp," n.d.). These acquired outcomes show that DL-based PdM frameworks have an extraordinary possibility for airplane upkeep, notwithstanding, they are truly vulnerable to sensor assaults. Henceforth it is expected to examine appropriate recognition strategies to identify such subtle assaults and unique consideration should be taken when fabricating IoT sensors for DL/AI applications(Chen et al. 2013). For the same explanation, while planning a PdM framework, the architect should consider the flexibility of the DL calculation rather than just accentuating the calculation's precision(Hu et al. 2015).

From the above discussion, only a few articles ensure that they provide better performance than the proposed AlexNet and ResNet algorithm for improving accuracy of vulnerability in twitter prediction. So, basically in layman terms, the code that is sent to twitter when a user tweet is intercepted and tweaked to tweet from the account of the targeted entity. This is a case of significant authentication bypass where the attacker is able to tweet from anybody's account without stealing the username and password of the target user. Therefore, it can be inferred that the proposed AlexNet and ResNet algorithm can be used to improve the accuracy (Kaur, Goyal, and Lu 2011).

5. Conclusion

Improved method for finding vulnerability in twitter through ripening using AlexNet in comparison over ResNet with improved accuracy. The work involves AlexNet Prediction to be proved with better accuracy of 98.0710 % when compared to ResNet accuracy is 94.8 %.

Declaration

Conflict of Interests

No conflict of interest in this manuscript.

Authors Contributions

Author SHV was involved in data collection, data analysis and manuscript writing. Author CNKB was involved in the conceptualization, data validation and critical review of manuscript.

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Tables and Figures

Table 1. Accuracy Values for AlexNet and ResNet

S.NO	AlexNet	ResNet
1	95.31	94.20
2	97.50	94.00
3	99.10	94.50
4	98.40	96.10
5	97.50	95.40
6	99.10	96.00
7	98.40	93.30
8	100.00	94.10
9	98.40	94.00
10	97.00	96.40

Table 2. Group Statistics Results-AlexNet and ResNet

Group Statistics					
	Groups	**N**	**Mean**	**Std deviation**	**Std. Error Mean**
Accuracy	AlexNet	10	98.0710%	1.31596	0.41614
	ResNet	10	94.800	1.08115	0.34189

Table 3. Independent Samples T-test - AlexNet and ResNet.

Accuracy	**Independent Samples Test**								
	Levene's Test for Equality of Variances		**T-test for Equality of Means**						
	F	**Sig**	**t**	**df**	**Sig(2-tailed)**	**Mean Difference**	**Std.Error Difference**	**95% Confidence Interval of the Difference**	
								Lower	**Upper**
Equal variances assumed	0.037	0.045	6.073	18	.000	3.27100	0.53858	2.13950	4.40250
Equal variances not assumed			6.073	17.347	.000	3.27100	0.53858	2.13643	4.40557

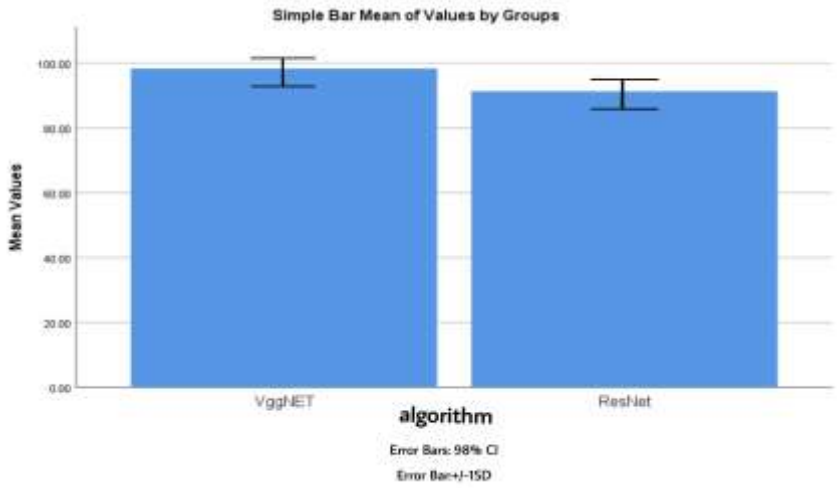

Fig. 1. Bar Graph Comparison on mean accuracy of AlexNet (98.0710%) and ResNet (94.8%). X-axis: AlexNet, ResNet, Y-axis: Mean Accuracy with ± 1 SD.