



## REVIEW OF ONLINE FRAUD DETECTION BY MACHINE LEARNING USING ARTIFICIAL NEURAL NETWORK

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### Abstract

The most common problem that hit our lives during this digital revolution is the “ONLINE FRAUDS”. A day in our life starts with online payments, online shopping, transactions and what not everything, as it makes our life comfortable and much better than before. We venture into various online platforms everyday, where the fraudsters also use them to steal!!! RBI reports that nearly Rs.214.5 crore worth of online frauds detected in financial year 2019. Most recently machine learning has been applied in detecting online frauds in various sectors such as banking, medical, insurance. Various methods such as logical regression, decision tree, random forest, neural networks have been used to prevent the online frauds. This paper proposes a fraud detection model based on “Artificial neural network” (ANN) in the field of online transactions.

### 1. Introduction

Machine learning, a branch of AI employs a variety of techniques that allows computers to learn and solve real-world problems. Online frauds arises due to the rise in online transactions through various payment methods such as phone pe, google pe, illegal activities are also increased. As the technology is increasing day by day, the fraudsters are also empowering themselves to be more skilled to commit the crime in a new way. So it has become a challenging task to save the customers from fraudsters. At this tough times

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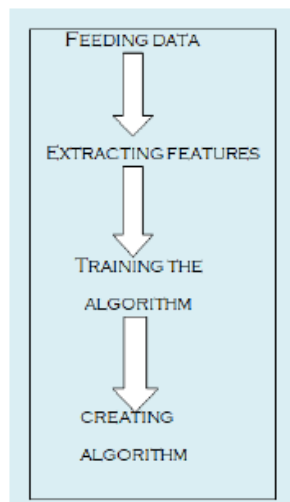
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machine learning plays a very important role in dealing with these online criminals, fraudsters from committing crime. Many of us may have a doubt how a machine can detect a fraud???? The first primary thing is the time complexity which plays a prominent role because of its fast reckoning, it analyses and processes the data in no time when compared to humans and the next is its ability to handle a growing amount of work by adding resources, as more data is given as input it becomes more exact and reliable in prediction. The performance and output is better when compared to manual work by preventing errors so that it avoids the occurrence of frauds and performs the redundant task of data analysis.

## 2. Method

Lets see how a machine learning system works for Fraud detection.



**i. Feeding Data.** As the name says at the first stage the data is given as input. The working style the model performs and becomes more perfect. Simply the accuracy of model depends on the level of input.

**ii. Extracting Features.** This is the process of related to the transaction process these can be location individual. The location checks the host identity and fraud rates at customers address and delivery address.

- the identity includes customers email address, mo

- mode of payment checks the car
- Network checks for number of transactions done within a network.

**iii. Training the Algorithm:** The third step is training the algorithm that it knows how to differentiate between fake and real transactions.

**iv. Creating a Model:** After training the fraud detection algorithm, now we are ready with a model that detects fraudulent and non fraudulent transactions.

We have various fraud detection algorithms and the main advantage that the model works more and more efficiently they are

1. Logistic regression
2. decision tree
3. random forest
4. neural network

**a. Logistic Regression:** During a transaction if the result occurred is either 'fraud' or 'non fraud' then it is logistic regression. Its decision is explicit.

**b. Decision Tree:** These are used when there is a need for arrangement of commonly occurring activities of transaction.

**c. Random Forest:** This uses a merge of decision trees to make the results better. Each decision tree performs its work.

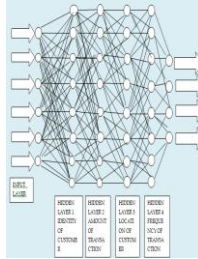
**d. Neural Network:** This concept is arisen by the human brain working. It uses the platforms based on scientific discipline of AI that helps in building machines that are efficient of evaluating their learning outcomes.

### 3. Application

#### Artificial Neural Network Algorithms

In Machine Learning, neural networks Is one of the learning algorithms. the interesting thing is these are inspired by human brain. As the name says neural networks are nothing but the neurons are just connected to each other. These artificial neurons are interconnected and communicate with each other as in humans they analyse and learn the data with the help of the

different layers in them. These layers are the “decision makers” for a transaction whether it is fraud or non fraud after inserting the input data into the neural network the hidden layer 2 checks the transaction amount now the other layers also perform their respective tasks, they check for details of transaction and mode of payment. With past experience and self learning the model calculates the probability for detecting frauds.



more layers in a neural network, the learning, accuracy and the pattern detection is more. The connections are weighted by learned event previously. Due to this it is applied for Detecting fraud. It is used in The recognition of character Istics and make predictions timely these algorithms are able to find patterns and apply those to new challenges in future they let the computers to search for optimal solutions.

#### 4. Experimentation and Result

In this the experimental results are predicted this network has a input layer and four hidden layer with neurons and a output layer these are connected by neurons, that’s what this makes a network. Therefore, various methods using machine learning have been attempted to capture new financial fraud.

#### 5. Conclusion

Finally, Machine learning can be seen as the building blocks which makes the computers to behave more intelligently. Machine learning saves the people from being hacked and prevents the fraudsters to commit a crime ML is trying to cope up with humans in different areas such as virtual personal assistants, online customer support, social media services.

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