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Comparative Effective study of machine learning Techniques

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Abstract **— Technology depends on accuracy, efficiency, performance, self- updating capability or by strong analysis procedure ,they may be computer system, automation, robotics, mechatronics, satellite controlling system etc ,but if simple design or static procedure is created ,they could work in limited environment ,as they will work on defined rules, but today change or updating is necessity for popularity or accuracy. The answer to all question is, machine learning technique has been came into existence ,by which system could take decision on existing rules or schemes or generate efficient result based on analysis of data .Here , in the propose paper different machine learning technique based on A.I. has been presented and compared.**

Keywords— SVM,KNN, ANN, Decision tree, Clustering, Bayesian

I. INTRODUCTION

This Network is a vast collection of technologies, and its application. The old systems has been designed on Static technologies, which works only on defined rules and algorithms, once architecture and functions created could not be change, but as technologies updated various approaches came for the upgratdation of existing technologies, Artificial Intelligence[1] ,a great approach solved all the complex problems ,which could seems impossible to analyses, The A.I. technique made a system a complete thinkable and decision making machine ,which could learn itself and analyses complex behaviour and help system to take decision as per records[2],collection of rules , pattern analysis, signature verification or fingerprinting analysis, Here in the propose paper Various A.I. Techniques has been presented with their significance. The different approaches shown here solve critical or complex behaviour by following their own methods.

II. RELATED WORK

IDS use an Intrusion Detection System (IDS) to detect SQLIAs, based on a machine learning technique. This tool detects attacks successfully but it depends on training seriously. The technique builds models of the typical queries and ten at runtime, queries that do not match the model would be identified as attack. Else, many false positives and false negatives would be generated. Various systems has been defined [4] based on anomaly detection, different techniques are present on which machine learning approach implements. Valeur et al. proposed an anomaly-based system that learns the profiles of the normal database access performed by web-based applications using a number of different models. Estevez. et al. proposed an approach , which used Markov model [3]to detect the web application attacks[5,6].

III. PROPOSED WORK

Here in the propose work different A.I. (Machine learning Technique) has been compared, they came into existence as per their implementation and applicability. Here , are some technique shown below.

Machine or system is trained using artificial intelligence approach ,so that machine could perform operation or decisions based on the variety, status and conditions of input and its structure.

Machine recognizes complex structure and patterns and could make intelligent decisions based on data training provided from standard datasets using Different Artificial intelligence approaches.

i) Different approached of machine learning are:

a) SVM(support Vector Machine) Learning approach:

It uses supervised learning for the classification and regression process.

It takes dataset each belongs to a categories or classes.
Ex:- Original query class[First class]
Suspicious query class [Second Class] as described in previous topics/

Here classifier used in SVM classifies data according to datasets training provided to the system.

Four different kernel functions are used for classification based on data types, whether the data is linear, on linear, scattered functions are used to classify data.

1) Linear function
2) Polynomial function
3) RBF function(Radial basis function) or Gaussian kernel function.
4) Sigmoid kernel function

It is mostly used, learning approach, as it provides sharp result because of varieties of kernel function for classification of given data.

b) KNN Learning approach(K-Nearest Neighbor):

Here object is classified based on a vote provided by his neighbouring regions.KNN Classifier result is based on the distance of objects located around.

c) Artificial Neural Network(ANN) learning:

Uses biological neural network approach to compute structure of data and their relationship , statistical behavior & patterns of data provided for classification.

d) Decision tree learning:

Uses tree approach and their features (like node, root , leaf etc) to classify data.

It uses C4.5 algorithm for the classification, It is also termed as statistical classifier, C4.5 is the extension of ID3 algorithm and provides best results.

d) Clustering learning:

Here , subset is created of datasets in the form of different clusters with relationship, Prediction or classification occurs based on the clusters generated according to their values.

e) Genetic approach :

It uses genetic algorithm to get optimize solution from the computer programs and datasets ,It searches for the best possible solution among all the available solutions. Use concept of survival of the fittest.

f) Association rule learning:

Uses techniques to discover interesting relationships existing between variable and objects in a lager databases or datasets.

g) Bayesian network learning:

Uses directed acyclic graph (DAG) approach. It is based on random variables and their interdependencies that is it is the calculation of probability of relationship of attacks and their symptoms, patterns, structures present on network.

h) Inductive Logic learning:

It is based on the background knowledge and hypothesis of patterns and their structures needed for the provision for designing results.

COMPRATIVE TABLE I

Functions / Approach	**Domain**	**Applications**	**Features**
SVM	Attack classification	Web designing's	Kernel function
KNN	Data Mining	Pattern Extraction	Distance between Clust.
ANN	Self adaptation and learning	Auto updating systems	Artificial Neurons
Decision Tree	Classification	Partitions analysis	Nodes
Clustering	Cluster analysis	Cluster positions and distance	Cluster nodes
Genetic	survival of the fittest	best possible solution	optimize solution
Association Rule	interesting relationships	variable and objects	databases or datasets analysis
Bayesian	DAG	probability of relationship	symptoms, patterns ,structures present on network
Inductive	Background knowledge	hypothesis of patterns	structure designing

IV. CONCLUSIONS

The Comparative study has been taken of different machine learning approach, some approaches has been taken from real life examples, like ANN(Artificial Neural Network),as it is based on human mind self learning behaviour and adaptability. Machine learning approaches creates decision capability and strong analytical behaviour, thousands of new pattern could be extracted using AI technique for analysis anything, It could be used for analysing market behaviour, human behaviour for creating strong architecture and best designs.

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