Machine Learning

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Abstract—

As it is already cleared that now a days machine learning is an useful learning for many systems. Many systems are using different types of machine learning in there different areas according to their need and uses. In this introduction about machine learning is given and its functionality is defined in which it processed the data to obtain the required output. In introduction there are different types of machine learning and basic introduction about these types are provided so it introduce basic functionality of its types. Currently there are many applications of machine learning and some of them are also mentioned below. Some basic useful application are mentioned in this paper which are generally applied in real world.

Keywords— **accuracy,algorithm,data,classifier**

INTRODUCTION

Machine learning is a technique in which data is classified into several category to determine the output. It consist an algorithm on which it works to obtain the result. This type of algorithm can be based on the classification of data set into several category. Machine learning is helpful where data is present in large amount so it contribute to peoples in minimum time.

Generally it works on an algorithm which maps an input to a output which helps to obtain the required results. Generally a classifier helps in determining required output which used to separate the categories.

In machine learning results also based on data and this can be labelled or unlabelled data. Sometime it is hard to get output with the unlabelled sample so than there is need to convert that data into labelled data to perform the better functionality.

Sometime unsupervised learning is used to handle the unlabelled data and to filtered it into labelled data so that supervised learning algorithm can perform there task with accuracy.

There are generally three kinds of machine learning. Kinds of machine learning:

1.Supervised learning
2.Unsupervised learning
3.Reinforcement learning

Supervised Learning:

Supervised learning is used in many areas now a days.

In supervised learning , an algorithm or a function is used to classify the set of data into different category by which it record all the category to analyse the output for future.

Both input and Output is present in Supervised learning in which mapping function is used which has respective output for input.

This type of machine learning used supervision and past experiences to determine the output.

Unsupervised Learning:

It is second type of machine learning. It is totally different from supervised learning because unsupervised learning can not predict output for the future and it does not learn from the past experiences.

It does not consist of supervision and does not classify the data into category. It is also a main

difference between supervised learning and unsupervised learning.

Unsupervised learning can be used for following applications:
1. Clustering
2.Anomaly Detection

Clustering means to divide the data into category on the basis of similarity. Generally people dors not prefer to use clustering

In anomaly detection can be used to select that data which will be unusual from the collection of dataset.

Reinforcement learning:

In reinforcement learning required output is maximize for a condition. It does not predict the output for future like supervised learning.

In this learning input will be available as a initial state to perform a task.

It can be many results for any particular situation.

Training will depend on the input and after that output will be generated .

It will verify the result again and again and every time it learn extra.

Correct output is selected on maximum result.

It is another type of machine learning. It used an algorithm which generates some results.

These results are verified again and again to check the accuracy level of this program and task this is why it is called reinforcement learning.

Two parts of machine learning are following which are used:

Transduction:

It is another form of machine learning which works something related to supervise learning but in this there is no classifier will be used to predict the output. In this results will be obtained with the use of labelled data and training set.

Learning to learn:

It is another important type of learning which is based on the classifier means it uses the classifier to Predict the output. Every time it verify the result and trained that classifier to obtain the output so that it increases the accuracy of output.

Applications of machine learning:

1 Email spam detection:

It is an application of machine learning in which email is checked that it is spam or not. Generally it is an application of supervised learning in which supervision is required to email spam detection.

So it helps in determine that email is useful or it is not important..

2 Handwriting recognition:

It is another application of machine learning in which it predict the handwriting of a person. In this supervised learning determines the output which will be based on past experiences but machine learning made it an easy task to predict the results.

So it contain sample data in which it uses an algorithm to predict the output so it saves the time and provides an effective way to get the results.

3 Automation System:

It is another application of machine learning in which machine learning is mostly used now a days.

Generally in automation , machine learning perform the task of control automation machine.

So in general words it can perform many task related to automation in minimum time.

4 Image Recognition:

It is another application of machine learning in which it detect the real image which is required so

in this way it saves time and provide the output according to their function or algorithm.

5 Face detection:

Machine learning is also useful in face detection . machine learning can be useful in determine the face of a person .It is also related to image detection also. Both image detection and face detection use the same concept of machine learning.

6 In character detection:

Machine learning can also be used in character recognition as it is used in image detection. It is another application of machine learning.
So machine learning makes it easy in less time.

7 In speech recognition:

It is another application of machine learning. In this application machine learning is used to detect the speech so it helps in search the correct speech according to the requirement.

8 In finance and banking to check credit cards:

 Machine learning can be used to check the credit cards that these are fraud or not fraud. Machine learning algorithm play an important role in determine the accuracy of credit cards which are used in banking.

9 In medical to check patient risk:

Machine learning can be useful to check the patient risk .it will contain two category of patient that are high risk patient and low risk patient and machine learning will predict the risk of patient on the basis of these two category.

CONCLUSIONS

Main aim of machine learning is to provide the result with the help of an algorithm or a function. Result provided by machine learning is based on the accuracy of algorithm which is used by machine learning so functionality of algorithm must be checked time to time for accurate output. Machine learning task is also depend on the type of sample such as labeled set of data is required for the supervised learning to predict the output. So firstly unlabelled data is filtered into labeled data so that supervised learning algorithm can be applied to determine the results. So here it is important which type of data you are using because every type of data is not enough to perform the mapping from input to output because when input and output pair will be formed than it is easy to predict the output. Sometime unsupervised learning play an important role to labeled the unlabelled data.

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