

REVIEW ON MACHINE LEARNING

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Abstract Machine learning is generally a field of computer science which gives the ability to learn without the use of programmer. Machine learning is also said to be artificial intelligence. In this algorithms can be easily understand and need number of raw data to work according to the set of algorithms. It can be easily organized and automatically solve more complex data in the problems. It helps in delivering faster and more accurate results. Some of the programs are based on internet oriented for example Google maps, amazon and other online applications. Mainly machine learning is used in internet of things. There are three different stages in machine learning so that it can execute according to that stages and learns from trainer. There are some of the challenges in Machine learning which can be solved, but few things can't be solved. So machine learning is important in day today's life. In this paper you will come to know about what is machine learning, stages, applications and challenges faced in it.

Key Words: machine learning, applications, challenges, etc..

1. INTRODUCTION

Machine Learning (ML) is a task done based on algorithms which are used in computer system to perform some of the instructions. It is a subfield of artificial intelligence. The main goal of machine learning is to set the structure of data into the system so that people can utilize system without the use of coding. Machine learning is used by computers to calculate or solve problems. In modern world machine algorithms are popularly used in private and public sectors. Machine learning facilities are important in modern computer systems so that the structure of data we set in the system will be automated according to the input of data we enter into computer system. Machine Learning (ML) is regarded as one of the most promising methodological approaches to perform network-data analysis and enable automated network self-configuration and fault management [1]. By this machine learning algorithm system can learning by itself to solve the problems. It performs independently on its own platform. Machine learning is used to teach machines how to handle the data more efficiently [2].

2. MACHINE LEARNING

Machine Learning is used for high level computer program or algorithm to set a task in the computer system. Machine Learning is over viewed on bases of theoretical and mathematical modeling how to set the process to work. This is an application of artificial intelligence on which it works automatically without use of user based on task which is set as an algorithm. Major concept in Machine Learning is that system can adapt or learn new data without human interface. Machine Learning knows how to build program in automatically. This short of Learning is used mainly in mathematical modeling of data and operations. Once we inserted the information of data into the system it can't be changed. Machine learning (ML) is to learn information from the data to process the system. It is a computational statistics used for mathematical operations on computer systems. Machine learning focuses on the development of computer programs that can access data and use it learn for themselves. Machine Learning algorithm is used in variety of applications so that there will be no difficult in performing tasks.

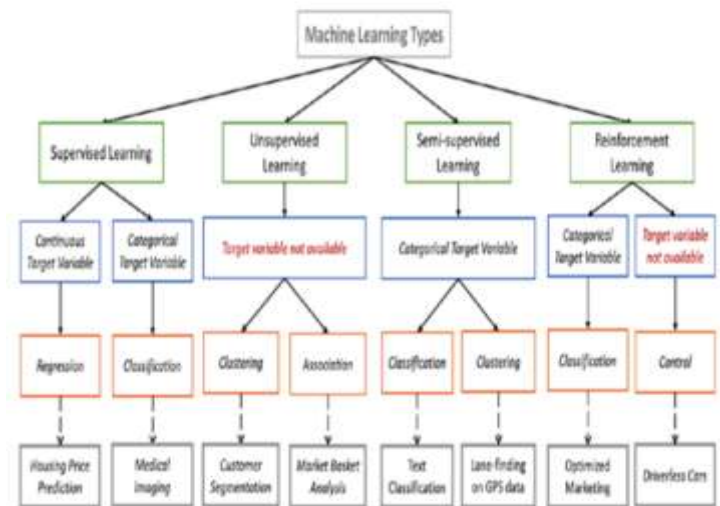


Fig: 1. Machine Learning

3. TYPES OF MACHINE LEARNING

Machine Learning is used on computer systems based on algorithms which are set in the task to perform. There are three types of Machine Learning:

3.1 Supervised Learning

This is the first type of Machine Learning, which is the simplest and basic to learn the algorithm and implement it. Supervised Learning is the one where we can see the learning can be guided by a teacher. Supervised Learning is based on functions of input and output of data from the trained data. In this Learning input are observed carefully and matched with the perfect trained output of data. The term itself defines that supervisor mean a teacher. In this we teach or train the machine using data to match correctly. For instance there is a set of folder with certain document in it, by using Supervised Learning algorithm we have to train like document size, date of completion, alphabetical order and etc., in which we have to train set of data for the perfect outcome based on the training algorithm. It can also classify the data according to output of variable. This type of learning can also be said that programmer is an teacher who gives input or gives some set of algorithms to get the output by using the help of training data that is users input.

3.2 Unsupervised Learning

The Unsupervised Learning works based on the training of machine will get information about the dataset and it will proceed through algorithm which is set default in the computer will act without the guidance. Here the machine works on bases of pattern and differences in the data set without any hell of training of data. It is opposite to supervised learning algorithm, because in this learning there is no training of data given to machine. Unsupervised learning can't identify the features of data particularly, but it can identify the pattern and relationships in the clusters of data. Unsupervised Learning algorithms consent to you to act upon extra intricate doling out errands compared to supervised learning. Unsupported knowledge is utterly special from Supervised Learning. This type of learning is used to find unknown pattern in data. It main task is to match the unlabeled data into to the labeled data which it gets from the input of data, which needs a manual intervention. It can identify the feature only for categorization.

3.3 Reinforcement Learning

Reinforcement Learning is a type of Machine Learning, were decision are taken by software agent to maximize at the particular situation. It takes a agent to find the best path in the specific situation. In simple words reinforcement is said to be that output depends on the current state of input. It is purely dependent on label of sequence. For example like chess and self driving cars. Reinforcement learning is used in industrial automation as robotics. It can also be used in the environment where there is no analytical solutions are present. It is also used for Machine learning and data processing. This used for long period of time with maximum number of performance. It is not similar to both supervised and unsupervised learning because both have training of data, but this learning does not need it. Its main

disadvantage is too much of reinforcement leads to sort the results.

4. MACHINE LEARNING APPLICATIONS

Machine Learning is used in computer systems with a set of algorithms which are to be performed by it. There are many applications in machine learning to improve in business decisions, Forecast weather, social media and many other things. There are some of the applications of machine learning used in day to day's life.

4.1 Virtual Personal Assistant

In machine learning application virtual personal assistant plays a major role in this learning. It assists the user to help for future reference or work to be done when the user applies set of instructions to it. Like "Siri" used in apple and "hey Google" in android mobiles is an example for virtual personal assistant. This works based upon the input of the user instruct the machine. First we have to activate them and give input to access them. Machine learning is important part which collects information and gives output. Few other applications are speech, speech to text conversion and text to speech conversion.

4.2 Social Media Service

Social media is used for personal and private news feeds and advertisement on social services. These are used for noticing, viewing and loving in the social media account is based on machine learning. For example Face book is used in social media to communicate with other friends, to look into their accounts and to know the other friends in face book these are operated with help of machine learning algorithms. Face recognition is used to match the picture which is uploaded in social media will match with others too. Another example in social media is Google search box is used on bases of complex machine learning algorithm. This is also used in booking cabs, if we book cab our location will be automatically sent to them with use of learning algorithm and the driver will pick up us.

4.3 Marketing and Sales

Machine learning predicts while travelling with help of GPS navigation. Today everyone uses GPS for finding the location and the route to go for the marked destination. Now a day's people use cab so that it shows the amount when you mark the location of destination were you want to drop. This is all done through the help of machine learning technology connects to GPS connectivity so that it shows the correct route and traffic in the places while travel in the route. Common example app for using these kinds of uses is Google Maps.

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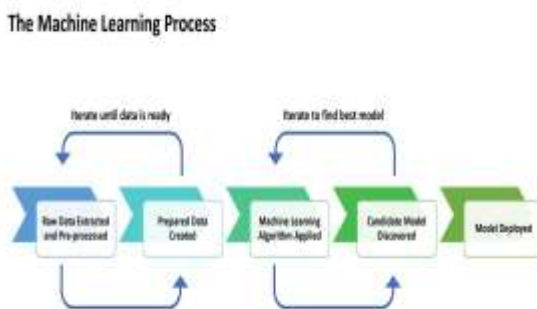


Fig. 2. Machine Learning Process

5. CHALLENGES IN MACHINE LEARNING

There are many challenges in machine learning the first and foremost is understanding which processes need to be automated to solve the problem but not every problem can be solved, it is difficult to separate the data for set each problems that needs to be solved. Quality of data is most important part in machine learning because data is important in using the machine learning algorithm, there are certain number of data's like dirty data, incomplete data which cannot be used in machine learning algorithms, so that it leads to crash of computer. The better solution is to have a good data so that the process will be done without any error, this step should be done before you start the machine learning. Machine learning infrastructure requires large number of storage capabilities, so that work load can be done easy or otherwise it should be upgraded. Having more algorithm lead to trained over a particular data set for future data reference. The smarter algorithm leads you to control it difficulty, you can fit more complex model to a small amount of data set and make sure your data set is clean without noisy. It can be deal with different stages of machine learning. Receiving recommendations are common today, it requires reliable or unreliable which is useless for machine learning data set to be processed. Having bad data will be leads to wrong results, when the data set is not understood properly it results wrong. So that only people are asked to insert quality of data, those unwanted data will moves to the garbage which is in the system. Even few

machine learning leads to failure. Many people know to develop machine learning with good data set so that system can easily understand. As already said that more number of storage needed otherwise the collection of data set will slower. There are certain steps for preparing data set algorithms. Machine learning looks from outside as a small step of process inside it requires large number of frameworks. Machine learning need more number time to get results because it need to gather data and train the algorithm according the problems that needs to be solved.

6. CONCLUSION

From the above information we can say that machine learning is important in daily life, which is useful for every person. Normally machine learning needs a set of data to be performed. There are many different steps involved in machine learning they are first data set should be clear and quality so that there won't be a lack of error, then analyzing the problem according to that data set will be matched with the models, then the trainer will train the algorithm that needs to be executed. Machine learning is segregated according to different stages that depend upon the problem and data set. Machine learning is used in modern world for various purposes of usages. Normally people use mobile phones for various reasons in that machine learning is updated there. Machine learning is used in mobile phones for navigations, booking of cabs and social media. Not only in these machine learning used it is also used in business fields over the network, for example amazon is an online shopping application which runs over network from this the customer buys the product and promotes the product by comment and likes. So in upcoming modern world machine learning will be the most used applications.

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