

A
Seminar Report on
Machine Learning

Presented

By
Pinninti Anitha
(18K61A1241)

Submitted to
G. Nageswara Rao(M.Tech)
Associate Professor
Department of Information Technology



INSTITUTE OF
TECHNOLOGY &
ENGINEERING
TADEPALLIGUDEM
WEST GODAVARI DIST. A.P



DECLARATION

I hereby declare that the report embodied in this dissertation entitled "**Machine Learning**" is carried out by me during the year 2020-2021 for a seminar to gain knowledge on the curriculum courses.

By

P.Anitha

18K61A1241

CONTENTS:

1. Abstract
2. Introduction
3. History of machine learning
4. Types of machine learning
5. Features
6. Steps of machine learning
7. Architecture of machine learning
8. Application of machine learning
10. Advantages
11. Disadvantages
12. Conclusion

1.ABSTRACT

Machine learning is a scientific discipline. The fields of machine learning integrates many distinct approaches such as probability theory, logic, combinational optimization, search statistics, reinforcement learning and control theory. The developed methods are the basis of many applications processing, forecasting, pattern, recognition, game, datamining, expert systems and robotics. Refers to a system's ability to acquire, and integrate knowledge through large-scale observations, and to improve, and extend itself by learning new knowledge rather than by being programmed with that knowledge. ML techniques are used in intelligent tutors to acquire new knowledge about students, identify their skills,

2. INTRODUCTION

Machine Learning (ML)

Machine learning is a subfield of artificial intelligence (AI). The goal of machine learning generally is to understand the structure of data and fit that data into models that can be understood and utilized by people. Any technology user today has benefitted from machine learning. Facial recognition technology allows social media platforms to help users tag and share photos of friends. Machine learning is a continuously developing field. Because of this, there are some considerations to keep in mind as you work with machine learning methodologies, or analyze the impact of machine learning processes. Machine learning algorithms instead allow for computers to train on data inputs and use statistical analysis in order to output values that fall within a specific range. Because of this, machine learning facilitates computers in building models from sample data in order to automate decision-making processes based on data inputs. Any technology user today has benefitted from machine learning. Facial recognition technology allows social media platforms to help users tag and share photos of friends. Optical character recognition (OCR) technology converts images of text into movable type. Recommendation engines, powered by machine learning, suggest what movies or television shows to watch next based on user preferences. Self-driving cars that rely on machine learning to navigate may soon be available to consumers. Machine learning is a continuously developing field. Because of this, there are some considerations to keep in mind as you work with machine learning methodologies, or analyze the impact of machine learning processes. In this tutorial, we'll look into the common machine learning methods of supervised and unsupervised learning, and common algorithmic approaches in machine learning, including the k-nearest neighbor algorithm, decision tree learning, and deep learning. We'll explore which programming languages are most used in machine learning, providing you with some of the positive and negative attributes of each. Additionally, we'll discuss biases that are perpetuated by machine learning algorithms, and consider what can be kept in mind to prevent these biases when building algorithms.

3. HISTORY OF ML

Arthur Samuel first came up with the phrase "Machine Learning" in 1952. Before some years (about 40-50 years), machine learning was science fiction, but today it is the part of our daily life. Machine learning is making our day to day life easy from self-driving cars to Amazon virtual assistant "Alexa". However, the idea behind machine learning is so old and has a long history. Machine Learning (ML) is an important aspect of modern business and research. It uses algorithms and neural network models to assist computer systems in progressively improving their performance. Machine Learning algorithms automatically build a mathematical model using sample data – also known as "training data" – to make decisions without being specifically programmed to make those decisions.

4. Types of machine learning

There are four types

- i. Supervised learning
- ii. Unsupervised learning
- iii. Semi-supervised learning
- iv. Reinforcement learning

Supervised learning

- Supervised learning is a type of machine learning method in which we provide sample labeled data to the machine learning system in order to train it, and on that basis, it predicts the output.
- The system creates a model using labeled data to understand the datasets and learn about each data, once the training and processing are done then we test the model by providing a sample data to check whether it is predicting the exact output or not.
- The goal of supervised learning is to map input data with the output data

Unsupervised learning

- Unsupervised learning is a learning method in which a machine learns without any supervision.
- In unsupervised learning, we don't have a predetermined result
- The goal of unsupervised learning is to restructure the input data into new features or a group of objects with similar patterns.

Semi-supervised learning

- Semi-supervised machine learning is a combination of supervised and unsupervised learning methods.
- In semi-supervised learning, an algorithm learns from a dataset that includes both labeled and unlabeled data, usually mostly unlabeled.
- The goal of a semi-supervised learning model is to make effective use of all of the available data, not just the labelled data like in supervised learning.

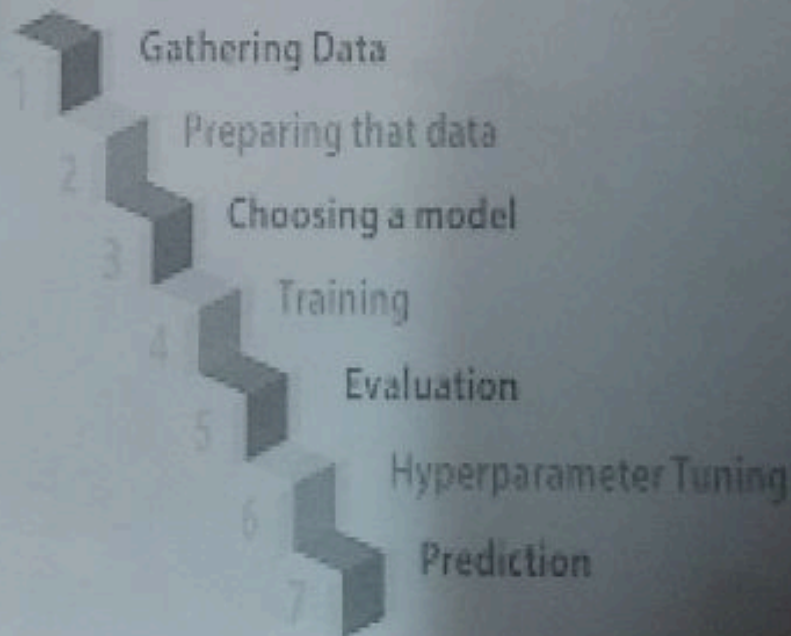
Reinforcement learning

- Reinforcement learning is a feedback-based learning method, in which a learning agent gets a reward for each right action and gets a penalty for each wrong action.
- The agent learns automatically with these feedbacks and improves its performance. In reinforcement learning, the agent interacts with the environment and explores it. The goal of an agent is to get the most reward points, and hence, it improves its performance.

5.Features

- Machine learning uses data to detect various patterns in a given dataset.
- It can learn from past data and improve automatically.
- It is a data-driven technology.
- Machine learning is much similar to data mining as it also deals with the huge amount of the data.

7 steps of Machine Learning



8. Advantages

- Easily identifies trends and patterns.
- No human intervention needed(automation)
- Continuous Improvement.
- Handling multi-dimensional and multi-variety data.
- Wide Applications.

9. Disadvantages of Machine Learning

- Data Acquisition
- Time and Resources
- Interpretation of Results
- High error-susceptibility

10.conclusion

Machines should be able to do all the things what we can do and machine learning will play a big role in achieving goals.