



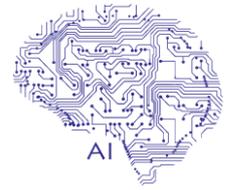
Introduction to Machine Learning

Introduction

Machine learning is a type of artificial intelligence (AI) that allows software applications to become more accurate in predicting outcomes without being explicitly programmed. The basic premise of machine learning is to build algorithms that can receive input data and use statistical analysis to predict an output value within an acceptable range. These computer programs are enabled to learn, grow, change, and develop by themselves.

To better understand the uses of machine learning, consider some of the instances where machine learning is applied: the self-driving Google car, cyber fraud detection, online recommendation engines—like friend suggestions on Facebook, Netflix showcasing the movies and shows you might like, and “more items to consider” and “get yourself a little something” on Amazon—are all examples of applied machine learning. Traditionally, data analysis was always being characterized by trial and error, an approach that becomes impossible when data sets are large and heterogeneous. Machine learning comes as the solution to all this chaos by proposing clever alternatives to analyzing huge volumes of data. By developing fast and efficient algorithms and data-driven models for real-time processing of data, machine learning is able to produce accurate results and analysis.

Machine learning algorithms are often categorized as being supervised or unsupervised. **Supervised** algorithms require humans to provide both input and desired output, in addition to furnishing feedback about the accuracy of predictions during training. Once training is complete, the algorithm will apply what was learned to new data. **Unsupervised** algorithms do not need to be trained with desired outcome data. Instead, they use an iterative approach called deep learning to review data and arrive at conclusions. Unsupervised learning algorithms are used for more complex processing tasks than supervised learning systems. The processes involved in machine learning are similar to that of data mining and predictive modeling. Both require searching through data to look for patterns and adjusting program actions accordingly.



Objectives

- In this Course You will learn an introduction to machine learning / AI (artificial intelligence) and neural networks (often referred to as deep learning) .technologies, and techniques. Fundamentals of Machine learning Models, used cases and examples for one of the hottest topics in this century

Duration: 8 hours

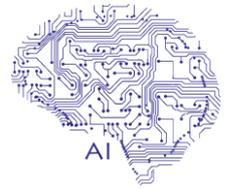
Target Audience

This Course target audience are:

- Beginners in machine learning
- People who like a hands-on approach and not only watching
- People who prefer practice instead of theory
- All people who want to dive into one of the hottest topics out there but do not know where to start

Prerequisites

- Internet Access
- Basic Computer Skills
- Being familiar with basic Python / Perl syntax



Contents – Day 1

- **Introduction to Machine Learning**
- **AI (Artificial intelligence) VS ML (Machine Learning)**
- **Supervised vs Unsupervised machine learning models**
- **Top 10 Machine Learning Algorithms**
- **The Machine Learning Process – Overview**
 - **Identifying, obtaining, and preparing the right data**
 - **Identifying and applying a ML Algorithm**
 - **Evaluating the performance of the model and adjusting**
 - **Using and presenting the model**
- **Introduction to Apache MXnet machine learning Library**
- **MXnet python Library**
- **MXnet Perl Library**
- **Neural Networks and deep learning**
 - **Neural Networks introduction**
 - **Deep learning introduction**
 - **What is one hot encoding**
 - **How to implement one hot encoding**
 - **How to handle missing values intro**
 - **Missing values to NaNs**
 - **How to impute missing values**
 - **Introducing the MNIST dataset**
 - **Programming a neural network in tensorflow**
- **Computer Vision with OpenCV**
- **Summary**