Introduction to Machine Learning

Machine Learning 🡪 machine Learning from Past Data

Data Science 🡪 Processing, Collection and Storage of Small, Large or Huge Data with Visualization

Artificial Intelligence 🡪 Machine mimicking Humans

Data Engineering 🡪 Processing, Collection and Storage of Small, Large or Huge Data

Data Analytics 🡪 Understanding of data through various Visualizations

Deep Learning 🡪 Using Mathematical Approaches to understand data and then make future predictions

Text

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1. Finding hidden patterns present in your data, generalizing it, and then searching for the same patterns in other samples. (Explainable AI)

Types of Machine Learning

1. Supervised Learning

Diagram, text, letter

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A picture containing text

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Machine Learning where information about Target is given. List of Algorithms:

Regression Problem (Predicting a Value)

Classification Problem (Predict the Classes)

1. Linear Regression (Regression)
2. Logistic Regression (Classification)
3. Naïve Bayes Algorithm (Classification)
4. Decision Trees (Both)
5. K-Nearest Neighbor Algorithm (Both)
6. Ensemble Trees (Both)
7. Ensemble Algorithms (Both)
8. Support Vector Machines (Both)

* Unsupervised Learning
  1. Clustering
     1. K-Means Clustering
     2. Hierarchical Clustering
  2. Dimensionality Reduction
     1. Principal Component Analysis
  3. Segmentation
  4. Recommendation System
     1. Apriori Rules
* Reinforcement Learning

When Machine learns from itself.

* Forecasting
  1. Moving Averages
  2. Simple Exponential Smoothing
  3. Holts Linear Method
  4. Holts Exponential Method
  5. Holts Dampened Method
  6. Holts Winters Method
  7. ARIMA
  8. S-ARIMA
  9. ARCH
  10. GARCH
  11. VAR
* Deep Learning
  1. Artificial Neural Networks (ANNs)
  2. Convolutional Neural Networks (CNNs)
  3. Recurrent Neural Networks (RNNs)
  4. Long Short-Term Memory (LSTMs)
  5. Gated Recurrent Units (GRU)
* Advanced Deep Learning
  1. BERT
  2. ROBERTA
  3. DISTILL BERT
  4. Transformers
  5. Reformers
  6. BART
  7. T5
  8. Pegasus
  9. GPT (GPT3)
  10. RESNET
  11. YOLO
  12. OpenCV
  13. XL-Net
  14. VGG Net

Applications

1. Natural Language Processing
2. Computer Vision
3. Chatbots
   1. RASA
4. Segmentation
   1. Panoptic Segmentation
5. Inventory …

Engineering

1. API Creation (Flask Python Package)
2. Docker
3. Linux
4. AWS/GCP/IBM/Azure/Local
5. Devops (MLOPs)
   1. CI/CD 🡪 Continuous Integration and Continuous Development
   2. GitHub
   3. Jenkins
   4. Maven
   5. Gradle
   6. Artifactory