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In [1]: pip install scikit-learn
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Requirement already satisfied: scikit-learn in c:\users\ok\anaconda3\lib\site-packages (0.24.2) Note: you may need to restart the kernel to use updated packages.

Requirement already satisfied: scipy>=0.19.1 in c:\users\ok\anaconda3\lib\site-packages (from scikit-learn) (1.7.1)

Requirement already satisfied: numpy>=1.13.3 in c:\users\ok\anaconda3\lib\site-packages (from scikit-learn) (1.20.3)

Requirement already satisfied: threadpoolctl>=2.0.0 in c:\users\ok\anaconda3\lib\site-packages (from scikit-learn) (2.2.0)

Requirement already satisfied: joblib>=0.11 in c:\users\ok\anaconda3\lib\site-packages (from scikit-learn) (1.1.0)

Types of machine learning Algorithms

--There some variations of how to define the types of Machine Learning Algorithms but commonly they can be divided into ---categories according to their purpose and the main categories are the following:

Supervised learning

Unsupervised Learning

Semi-supervised Learning

Reinforcement Learning

Supervised Learning:

I like to think of supervised learning with the concept of function approximation, where basically we train an algorithm and in the end of the process we pick the function that best describes the input data, the one that for a given X makes the best estimation of y ($X \rightarrow y$). Most of the time we are not able to figure out the true function that always make the correct predictions and other reason is that the algorithm rely upon an assumption made by humans about how the computer should learn and this. Supervised learning algorithms try to model relationships and dependencies between the target prediction output and the input features such that we can predict the output values for new data based on those relationships which it learned from the previous data sets.

Draft:

Predictive Model*

we have labeled data*

The main types of supervised learning problems include regression and classification problems*

List of Common Algorithms

Nearest Neighbor

Naive Bayes

Decision Trees

Linear Regression

Support Vector Machines (SVM)

Neural Networks

Unsupervised Learning

The computer is trained with unlabeled data. Here there's no teacher at all, actually the computer might be able to teach you new things after it learns patterns in data, these algorithms are particularly useful in cases where the human expert doesn't know what to look for in the data. Are the family of machine learning algorithms which are mainly used in pattern detection and descriptive modeling. However, there are no output categories or labels here based on which the algorithm can try to model relationships. These algorithms try to use techniques on the input data to mine for rules, detect patterns, and summarize and group the data points which help in deriving meaningful insights and describe the data better to the users.

Drafts

Descriptive Model

The main types of unsupervised learning algorithms include Clustering algorithms and Association rule learning algorithms.

List of Common Algorithms

k-means clustering, Association Rules

Semi-supervised Learning

In the previous two types, either there are no labels for all the observation in the dataset or labels are present for all the observations. Semi-supervised learning falls in between these two. In many practical situations, the cost to label is quite high, since it requires skilled human experts to do that. So, in the absence of labels in the majority of the observations but present in few, semi-supervised algorithms are the best candidates for the model building. These methods exploit the idea that even though the group memberships of the unlabeled data are unknown, this data carries important information about the group parameters.

Reinforcement Learning

Reinforcement Learning is a type of Machine Learning, and thereby also a branch of Artificial Intelligence. It allows machines and software agents to automatically determine the ideal behavior within a specific context, in order to maximize its performance. Simple reward feedback is required for the agent to learn its behavior; this is known as the reinforcement signal.

List of Common Algorithms

Q-Learning

Temporal Difference (TD)

Deep Adversarial Networks

Best regards!

In []: