

Resource List

Intro

Broadly 3 types of machine learning algorithms:

- Supervised Learning
How it works: This algorithm consists of a target / outcome variable (or dependent variable) which is to be predicted from a given set of predictors (independent variables). Using this set of variables, we generate a function that maps inputs to desired outputs. The training process continues until the model achieves a desired level of accuracy on the training data. Examples of Supervised Learning: Regression, Decision Tree, Random Forest, KNN, Logistic Regression etc.
- 2. Unsupervised Learning
How it works: In this algorithm, we do not have any target or outcome variable to predict / estimate. It is used for clustering populations in different groups, which is widely used for segmenting customers in different groups for specific intervention. Examples of Unsupervised Learning: Apriori algorithm, K-means.
- 3. Reinforcement Learning:
How it works: Using this algorithm, the machine is trained to make specific decisions. It works this way: the machine is exposed to an environment where it trains itself continually using trial and error. This machine learns from past experience and tries to capture the best possible knowledge to make accurate business decisions. Example of Reinforcement Learning: Markov Decision Process

Linear regression

Theory : <https://youtu.be/E5RjzSK0fvY>

Theory: <http://www.stat.yale.edu/Courses/1997-98/101/linreg.htm>
<https://towardsdatascience.com/linear-regression-detailed-view-ea73175f6e86>

Implementation : <https://youtu.be/b0L47BekITE>

Logistic regression

Theory and implementation : <https://youtu.be/VCJdg7YBbAQ>

Theory: <https://www.analyticsvidhya.com/blog/2021/07/an-introduction-to-logistic-regression>

Decision Tree

Theory : <https://youtu.be/7VeUPuFGJHk>

Theory: <https://www.analyticsvidhya.com/blog/2021/08/decision-tree-algorithm/>

Implementation : <https://youtu.be/HY2DcBhgwm0>

SVM

Theory : <https://youtu.be/H9yACitf-KM>

Theory: <https://www.analyticsvidhya.com/blog/2021/06/support-vector-machine-better-understanding/>

Implementation : <https://youtu.be/FB5EdxAGxQg>

Naive Bayes

Theory : <https://youtu.be/jS1CKhALUBQ>

Theory:

<https://www.analyticsvidhya.com/blog/2021/09/naive-bayes-algorithm-a-complete-guide-for-data-science-enthusiasts/>

Implementation : <https://youtu.be/nHIUYwN-5rM>

KNN

Theory and implementation : <https://youtu.be/wTF6vzS9fy4>

Theory:

<https://www.analyticsvidhya.com/blog/2018/08/k-nearest-neighbor-introduction-regression-python/>

K Means

Theory : <https://www.youtube.com/watch?v=4b5d3muPQmA>

Theory: <https://www.analyticsvidhya.com/blog/2019/08/comprehensive-guide-k-means-clustering>

Implementation : https://www.youtube.com/watch?v=ikt0sny_lmY

Boosting (adaboost)

Theory : <https://www.youtube.com/watch?v=NLRO1-jp5F8&t=724s>

Theory : <https://scikit-learn.org/stable/modules/generated/sklearn.ensemble.AdaBoostClassifier.html>

Implementation : <https://www.youtube.com/watch?v=7xHM93WXOu8>

Bagging (random forest)

Theory : <https://www.youtube.com/watch?v=KlOeZ5cFZ50>

Theory : <https://scikit-learn.org/stable/modules/generated/sklearn.ensemble.RandomForestClassifier.html>

Implementation : <https://www.youtube.com/watch?v=MxiktOPmhV8&t=2s>

Principle Component Analysis

Implementation : <https://www.youtube.com/watch?v=QdBy02ExhGI>

Theory : <https://www.youtube.com/watch?v=fkf4IBRSeEc> (OPTIONAL)

Overfitting and Underfitting

<https://www.youtube.com/watch?v=T9NtOa-IITo> [VERY IMPORTANT]

Note : This concept can be seen in K Means and decision trees as well. In fact we will look deeper into this when we begin deep learning.