

Instance-Based vs Model-Based Learning

Instance Based Learning:

Instance based learning, also known as memory based or lazy learning is a type of machine learning which relies on the similarity of training data for predictions.

- It doesn't build a generalized model
- It memorizes the training examples & uses them for making predictions

Ex: i] K-Nearest Neighbors (KNN)
ii] Radius Based ^{Neighbors} classifiers (RNC)
iii] Memory Based Reasoning (MBR)
iv] Self Organizing Maps (SOM)

Model Based Learning:

Model based learning involves building a generalized model during the training phase that captures patterns & relationships in the data.

Ex: i] Linear Regression
ii] Decision Tree
iii] Random Forest
iv] Support Vector Machines

Challenges in ML?

1. Data Collection

- can be acquired by API
- web scrapping

2. Insufficient Data/Labelled Data

- unreasonable effectiveness of data

3. Non Representative Data

- Sampling Noise
- sampling Bias

4. Poor Quality Data

5. Irrelevant Features

6. Overfitting

7. Underfitting

8. Software Integration

9. Offline Learning / Deployment

10. Cost involved