

Bangabandhu Sheikh Mujibur Rahman
Science & Technology University, Gopalganj-8100



Assignment on
Application of Machine Learning

Course Code: CSE451

Course Title: Machine Learning

Submitted by:

Name: Md. Milon Sheikh

ID: 16CSE049

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Submitted to:

Name: Dr. Mrinal Kanti Baowaly

Assistant Professor

Dept. of Computer Science & Engineering

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Application of Machine Learning.

1. Classification type: If the output variable is discrete value (for instance male, female etc.) we can say that is supervised learning belongs to classification type. Some of its ~~also~~ applications given below -

(a) Email-Spam classification: Whenever we receive a new email, it is filtered automatically as important, normal, and spam. We always receive an important mail in our inbox with the important symbol and spam emails in our spam box, and the technology behind this is

Machine Learning.

Some machine learning algorithms such as Multi-Layer Perception, Decision tree and Naive

Bayes classifiers are used for email spam filtering and malware detection.

(b) Image Classification: Image classification assigns previously trained categories to a given image. These could be the subject of the image, a numerical value, a theme etc. Using supervised learning algorithm, we can tag images to train our model for appropriate categories. As with all machine learning models, the more we train it, the better it will work.

(c) Sentiment analysis: Sentiment analysis is a machine learning text analysis technique that assigns sentiment (opinion, feeling or emotion) to words within a text, or an entire

text on a polarity scale of Positive, Negative or Neutral.

Some other example of application of Classification type are ~~Face~~ plant species classification, Optical character recognition etc.

2. Regression : If the output variable is a continuous value (for instance weight, height etc), we can say that supervised learning belongs to Regression problem.

(a). Stock Markets trading : Machine Learning is widely used in stock market trading. In the stock market, there is always a risk of up and down in shares, so for this machine learning's long short term

memory neural network is used for the prediction of stock market trends.

(b) Weather forecasting: Weather forecasting is the application of scientific techniques and technology to predict the condition of atmosphere at a certain location and time.

(c) Human Population Growth: Human population growth plays a key role in any regional planning. In many data constraint environment, it is not possible to collect the required the demographic data to predict the human population growth rate.

3. Clustering : In such problem, it is group the given data upon various conditions. Such analysis is used in education field to cluster students. Some applications are given below-

(a) Grouping of shopping items : clustering

can be used to group all the shopping item available on the web a set of unique product.

(b) Natural Language processing : clustering

can be used to resolve lexical ambiguity. NLP Generally use ~~a~~ unsupervised - text - clustering.

(c) Recommender systems : Recommender systems

are designed to recommend new item based on a user's tastes. They sometimes use clustering algorithms to predict a user's pref-

erence based on the preferences of other users in the users' clusters.

9. Association: In such problem, it will discover relationships in the given data set.

(a) Medical Diagnosis: With the help of association rules, patients can be cured early, as it helps in identifying the ~~prob~~ probability of illness for a particular disease.

(b) Protein Sequence: The association rules help in determining the synthesis of artificial proteins.

(c) Market Basket Analysis: It is one of the popular examples and applications of association rule mining. This technique is commonly used by big retailers to determine the association between items.

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