Machine Learning Algorithms

Support vector machine:

This is a machine learning algorithm that is supervised. It can be used for either a classification problem or a regression one. However, in most cases it is used for classification problems.

Support vector machine is best suited for situations where there is a requirement for the classification of unseen data in an efficient and correct manner.

Some of the advantages of support vector machine algorithms are:

1. It works well in situations whereby the number of dimensions exceeds the corresponding number of samples
2. Support vector machine algorithm is quite useful in high dimensional spaces
3. Support vector machine algorithm enhances memory efficiency via support vectors which utilises a subset of training points in the decision function
4. Support vector machine algorithm works best when there is a clearly defined margin of separation

Disadvantages include:

1. Support vector machine will not give a high degree of accuracy when there is a larger data set involved as it will require a longer training time
2. It is not very efficient in situations where the data set is termed as ‘having more noise’ for example when the classes in the data set overlap.
3. Support vector machine algorithm falls short in situations where probability estimates are required as it does not provide this directly. This is calculated via a five-fold cross validation which is more expensive overall.

Examples of where support vector machine algorithm has been used include

* Face detection or facial expression classification
* Cancer prognosis and diagnosis
* Text classification
* Inverse geo-sounding problems
* Seismic Liquefaction Potential
* Protein Fold and Remote Homology Detection
* Data Classification
* Texture classification
* Speech recognition
* Stenography Detection in Digital Images

References

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