

## Report

Boosting is an ensemble learning method that combines a set of weak learners into a strong learner to minimize training errors. In boosting, a random sample of data is selected, fitted with a model and then trained sequentially—that is, each model tries to compensate for the weaknesses of its predecessor.

**Advantages:** Boosting grants power to machine learning models to improve their accuracy of prediction. Boosting algorithms are one of the most widely used algorithms in data science competitions. The winners of our last hackathons agree that they try boosting algorithms to improve accuracy of their models.

**Disadvantages:** One disadvantage of boosting is that it is sensitive to outliers since every classifier is obliged to fix the errors in the predecessors. Thus, the method is too dependent on outliers. Another disadvantage is that the method is almost impossible to scale up. This is because every estimator bases its correctness on the previous predictors, thus making the procedure difficult to streamline.

**Applications:** Some of the most widely used applications of boosting are medical area, text classification, academic, and commercial etc. Further, Boosting technique is a type of ensemble method, which is used when there is a collection of many weighted same or different types of predictors.

**Conclusion:** In this survey paper, we saw that the boosting algorithm is very vast in itself and also it has many interpretations. AdaBoost is better than a random imagination and also we saw that XGBoost has a fast performance due to parallel computation while other boosting algorithms work on serial computations. Missing values are handled in these algorithms. Over-fitting problems can also be overcome by these algorithms.