

Random Forest Primer

using R

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# Heading 1

Ensemble Learning is a type of Supervised Learning Technique in which the basic idea is to generate multiple Models on a training dataset and then simply combining(average) their Output Rules or their Hypothesis \( H\_x \) to generate a Strong Model which performs very well and does not overfits and which balances the Bisa-Variance Tradeoff too.

The idea is that instead of producing a single complicated and complex Model which might have a high variance which will lead to Overfitting or might be too simple and have a high bias which leads to Underfitting, we will generate lots of Models by training on Training Set and at the end combine them. Such a technique is Random Forest which is a popular Ensembling technique is used to improve the predictive performance of Decision Trees by reducing the variance in the Trees by averaging them. Decision Trees are considered very simple and easily interpretable as well as understandable Modelling techniques, but a major drawback in them is that they have a poor predictive performance and poor Generalization on Test Set. They are also referred to as Weak Learners which are Learners which always perform better than chance and have an error less than 50 %.

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## Heading 2

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