Abstract:

Gradient boosting machines are a family of powerful machine-learning techniques that have shown considerable success in a wide range of practical applications. They are highly customizable to the particular needs of the application, like being learned with respect to different loss functions. This article gives a tutorial introduction into the methodology of gradient boosting methods. A theoretical information is complemented with many descriptive examples and illustrations which cover all the stages of the gradient boosting model design. Considerations on handling the model complexity are discussed. A set of practical examples of gradient boosting applications are presented and comprehensively analyzed.