Notes on Classification and Regression Trees (CART)

compiled by D.Gueorguiev, 6/27/25

# Tree-based methods for classification and regression

Tree-based methods for predicting the scalar from a feature vector divide up the feature space of p-dimensional hyperrectangles and then fit very simple model in each hyperrectangle. This applies to both when is discrete and when is continuous; that is – both for *classification* and *regression*.

Rectangles

References

[1] [Tree-based methods for classification and regressions, Ryan Tibshirani, Data Mining class slides, 2013](https://github.com/dimitarpg13/statistical_learning_and_kernel_methods/blob/main/literature/articles/classification_and_regression/Tree-based_methods_for_classification_and_regression_Tibshirani_2013.pdf)

[2] [Classification Algorithms and Regression Trees, a chapter from “Nonlinear Estimation and Classification”, Ingo Ruczinsky, 2003](https://github.com/dimitarpg13/statistical_learning_and_kernel_methods/blob/main/literature/articles/classification_and_regression/Classification_Algorithms_and_Regression_Trees_Ingo_Ruszinsky.pdf)

[3] [Data Mining with Decision Trees: Theory and Applications, Lior Rokach, Oded Maimon, 2nd Edition, 2014](https://github.com/dimitarpg13/statistical_learning_and_kernel_methods/blob/main/literature/articles/classification_and_regression/DataMiningwithDecisionTrees_Theory_and_Applications_2nd_ed_Rokach_Maimon_2014.pdf)