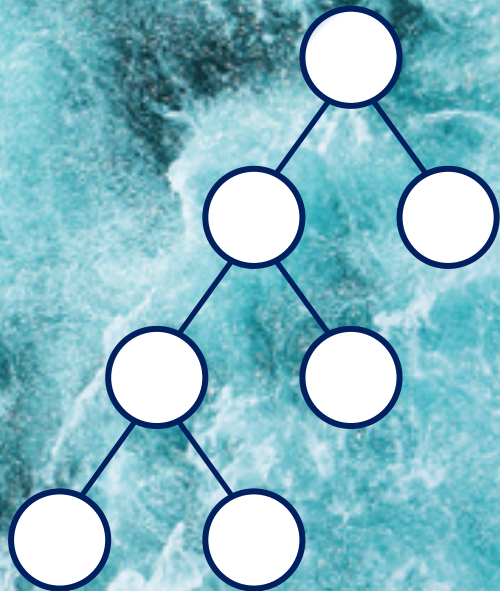




Hamilton virtual Student Seminar Series



Bayesian Additive Regression Trees with Model Trees

Estevão Prado

When: 6th October 11:00

Where: Zoom @ tinyurl.com/y5ak6ezv

Bayesian Additive Regression Trees with Model Trees

Abstract

Bayesian Additive Regression Trees (BART) is a tree-based machine learning method that has been successfully applied to regression and classification problems. BART assumes regularisation priors on a set of trees that work as weak learners and is very flexible for predicting in the presence of non-linearity and high-order interactions. In this talk, we introduce an extension of BART, called Model Trees BART (MOTR-BART), that considers piecewise linear functions at node levels instead of piecewise constants. In MOTR-BART, rather than having a unique value at node level for the prediction, a linear predictor is estimated considering the covariates that have been used as the split variables in the corresponding tree. In our approach, local linearities are captured more efficiently and fewer trees are required to achieve equal or better performance than BART. Via simulation studies and real data applications, we compare MOTR-BART to its main competitors

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