

Meinshausen, Nicolai**Quantile regression forests.** (English) Zbl 1222.68262

J. Mach. Learn. Res. 7, 983-999 (2006).

Summary: Random forests were introduced as a machine learning tool by *L. Breiman* [Mach. Learn. 45, No. 1, 5–32 (2001; Zbl 1007.68152)] and have since proven to be very popular and powerful for high-dimensional regression and classification. For regression, random forests give an accurate approximation of the conditional mean of a response variable. It is shown here that random forests provide information about the full conditional distribution of the response variable, not only about the conditional mean. Conditional quantiles can be inferred with quantile regression forests, a generalisation of random forests. Quantile regression forests give a non-parametric and accurate way of estimating conditional quantiles for high-dimensional predictor variables. The algorithm is shown to be consistent. Numerical examples suggest that the algorithm is competitive in terms of predictive power.

MSC:**68T05** Learning and adaptive systems in artificial intelligence**62H30** Classification and discrimination; cluster analysis (statistical aspects)Cited in **1** ReviewCited in **45** Documents**Keywords:**

quantile regression; random forests; adaptive neighborhood regression

Software:

R

Full Text: [Link](#)