The Editor,
Journal of Statistical Software

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Manuscript Submission

Dear Editor,

Please find enclosed the manuscript "*Evolutionary Learning of Globally Optimal Classification and Regression Trees in R* along with the accompanying R package *evtree*, which we would like to submit for the *Journal of Statistical Software*. Furthermore, please find enclosed the following supplements: (*evtree_0.1-1.tar.gz),* the package source; (*interactive_examples_evtree.R),* the interactive examples from the manuscript; (*benchmark_evtree.R),* the code for the benchmark experiments. The package is also available from the Comprehensive R Archive Network at http://CRAN.R-project.org/package=evtree.

The submitted work describes the *evtree* package, which implements an evolutionary algorithm for learning globally optimal classification and regression trees in R. In contrast to locally optimal recursive partitioning algorithm like CART, the presented algorithm selects splits in a globally optimal way. In this paper, *evtree* is compared to *rpart* (Therneau and Atkinson 1997), the open-source CART implementation, and conditional inference trees (*ctree*, Hothorn, Hornik, and Zeileis 2006). The usefulness of *evtree* is illustrated in a textbook customer classification task and a benchmark study of predictive accuracy in which evtree achieved at least similar and most of the time better results compared to the recursive algorithms *rpart* and *ctree*. The goal of *evtree* is to complement the tree toolbox with an alternative method which may perform better given sufficient amounts of time and main memory.

We appreciate your consideration of this manuscript and look forward to hearing from you.

Sincerely,

Thomas Grubinger, Achim Zeileis and Karl-Peter Pfeiffer