Package 'predReliability'

October 14, 2022

Title Estimates Reliability of Individual Supervised Learning Predictions

Version 0.1.0

Description An implementation of reliability estimation methods described in the paper (Bosnic, Z., & Kononenko, I. (2008) <doi:10.1007/s10489-007-0084-9>), which allows you to test the reliability of a single predicted instance made by your model and prediction function. It also allows you to make a correlation test to estimate which reliability estimate is the most accurate for your model.

Depends R (>= 3.3.2)

Imports parallel, cluster, rpart

License GPL-3

Encoding UTF-8

LazyData true

RoxygenNote 7.1.1

NeedsCompilation no

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R topics documented:

predReliability *A reliability function*

Description

A function used to calculate the reliability of individual predictions given by your model and prediction function with methods described in the paper (Bosnic, Z., & Kononenko, I. (2008) <doi:10.1007/s10489-007-0084-9>). It also allows you to make a correlation test to estimate which reliability estimate is the most accurate for your model.

Usage

```
predReliability(
  data.test,
  data.train,
  types,
  formula,
  model.function,
  predict.function,
  ceval = F,
  nThread = 1,
  ...
)
```

Arguments

data.test	a data.frame object used as the testing data for your prediction model
data.train	a data.frame object used as the training data for your prediction model
types	a vector of reliability test types you want to perform c("bagv", "cnk", "lcv", "sa")
formula	a formula describing the model to be fitted
model.function	a function with arguments formula and data.frame implementing the predictive model to be evaluated. The function model must return an onject representing a fitted model.
predict.function	a function with arguments model object data.frame of testing instances that will be predicted based on the given model.
ceval	a flag whether a 10-fold correlation test should be made on the requested types (default set to false)
nThread	the number
...	extra arguments you wish to be passed to your model and prediction function

References

Bosnic, Z., & Kononenko, I. (2008). Comparison of approaches for estimating reliability of individual regression predictions. Data & Knowledge Engineering, 67(3), 504-516. Bosnic, Z., & Kononenko, I. (2008). Estimation of individual prediction reliability using the local sensitivity analysis. Applied intelligence, 29(3), 187-203. Bosnic, Z., & Kononenko, I. (2009). An overview of advances in reliability estimation of individual predictions in machine learning. Intelligent Data Analysis, 13(2), 385-401.

Examples

```
estimates <- c("bagv", "cnk", "lcv", "sa")
predReliability(mtcars[1,], mtcars[-1,], estimates, mpg~., rpart::rpart, predict)
```

Index