

Package: predReliability (via r-universe)

November 6, 2024

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](https://doi.org/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

Author Simon Cof [aut, cre]

Maintainer Simon Cof <simon.cof@windowslive.com>

Repository CRAN

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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

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

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