

# Package ‘predReliability’

July 7, 2020

**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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**Repository** CRAN

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 predReliability

*A reliability function*


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### 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 <a href="#">data.frame</a> object used as the testing data for your prediction model
<code>data.train</code>	a <a href="#">data.frame</a> object used as the training data for your prediction model
<code>types</code>	a <a href="#">vector</a> of reliability test types you want to perform c("bagv", "cnk", "lcv", "sa")
<code>formula</code>	a <a href="#">formula</a> describing the model to be fitted
<code>model.function</code>	a function with arguments <a href="#">formula</a> and <a href="#">data.frame</a> 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 <a href="#">data.frame</a> 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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