Package ‘reportROC’

July 21, 2020

Type Package
Title An Easy Way to Report ROC Analysis
Version 3.5
Author Zhicheng Du, Yuantao Hao
Maintainer Zhicheng Du<dgdzc@hotmail.com>
Description Provides an easy way to report the results of ROC analysis, including:
1. an ROC curve. 2. the value of Cutoff, AUC (Area Under Curve), ACC (accuracy),
SEN (sensitivity), SPE (specificity),
PLR (positive likelihood ratio), NLR (negative likelihood ratio),
PPV (positive predictive value), NPV (negative predictive value).
License GPL-3
Imports pROC
LazyData TRUE
NeedsCompilation no
Repository CRAN
Date/Publication 2020-07-21 06:30:02 UTC

R topics documented:

aSAH .......................................................... 1
reportROC .................................................. 2

Index 5

aSAH Subarachnoid hemorrhage data

Description

This dataset summarizes several clinical and one laboratory variable of 113 patients with an aneurysmal subarachnoid hemorrhage.
Usage

aSAH

Format

A data.frame containing 113 observations of 7 variables.

Source


References


Examples

```r
# load the dataset
data(aSAH)

# Gender, outcome and set
with(aSAH, table(gender, outcome))

# Age
with(aSAH, by(age, outcome, mean))
with(aSAH, by(age, outcome,
    function(x) sprintf("mean: %.1f (+/- %.1f), median: %.1f (%i-%i)",
                         mean(x), sd(x), median(x), min(x), max(x))))

# WFNS score
with(aSAH, table(wfns=ifelse(wfns<=2, "1-2", "3-4-5"), outcome))
```

Description

Provides an easy way to report the results of ROC analysis, including: 1. an ROC curve. 2. the value of Cutoff, AUC (Area Under Curve), ACC (accuracy), SEN (sensitivity), SPE (specificity), PLR (positive likelihood ratio), NLR (negative likelihood ratio), PPV (positive predictive value), NPV (negative predictive value).
Usage

reportROC(gold, predictor, predictor.binary, important, plot, xlab, ylab, positive)

Arguments

gold numeric(0/1) or binary, the 'gold standard'; typically encoded with 0 (controls) and 1 (cases)
predictor numeric, the predictor variable
predictor.binary numeric(0/1) or binary, if this argument was used, other arguments including 'predictor' and 'important' would be disabled
important 'se' or 'sp', some Youden index maybe the same, and 'important' is to indicate which is more important between sensitivity and specificity
plot logic, whether to plot the ROC curve with specific style
xlab character, the name of X axis
ylab character, the name of Y axis
positive logic, 'l': the larger predictor or predictor.binary indicates the 'cases', 's': the smaller one indicates the 'cases'

Value

Cutoff cutoff, only for numeric predictor
AUC Area Under Curve, AUC
AUC.SE the standard error of AUC
AUC.low, AUC.up the 95 percent CI of AUC
P the p value for AUC using one-sided test, which is different from SPSS using two-sided test
ACC accuracy
ACC.low, ACC.up the 95 percent CI of accuracy
SEN sensitivity
SEN.low, SEN.up the 95 percent CI of sensitivity
SPE specificity
SPE.low, SPE.up the 95 percent CI of specificity
PLR positive likelihood ratio
PLR.low, PLR.up the 95 percent CI of PLR
NLR negative likelihood ratio
NLR.low, NLR.up the 95 percent CI of NLR
PPV positive predictive value
PPV.low, PPV.up the 95 percent CI of PPV
NPV negative predictive value
NPV.low, NPV.up the 95 percent CI of NPV
Note

Please feel free to contact us, if you have any advice and find any bug!

Update description:

version 2.0: 1. 95 percent CIs for AUC, SEN, SPE, PLR, NLR, PPV and NPV are available.

version 3.0: 1. binary predictor is available with the new argument 'predictor.binary'. 2. positive indicator is available with the new argument 'positive'.

version 3.1: 1. accuracy is available. 2. roc curve is available for binary predictor.

version 3.2: 1. data with missing values can be handled.

version 3.3: 1. fixed the bug of the same value in 'AUC' and 'AUC.low'.

version 3.4: 1. fixed the axis names of the ROC plot. Thank Cesar S. Rabak (csrabak@hotmail.com) for the useful comments.

version 3.5: 1. add p value to the outputs.

more functions will be included in 'reportROC' package!

Author(s)

Zhicheng Du<dgdzc@hotmail.com>, Yuantao Hao<haoyt@mail.sysu.edu.cn>

See Also

nothing

Examples

```r
data(aSAH)
reportROC(gold=aSAH$outcome,predictor=aSAH$s100b,important="se",plot=TRUE)

binary=rep(0,nrow(aSAH))
binary[aSAH$s100b>=0.205]=1
reportROC(gold=aSAH$outcome,predictor.binary=binary)
```
Index

* ROC analysis
  reportROC, 2
* datasets
  aSAH, 1

aSAH, 1
reportROC, 2