

Package ‘icsurvROC’

December 3, 2018

Type Package

Title Interval Censored Survival ROC

Version 0.1.0

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Description Nonparametric and semiparametric estimations of the time-dependent ROC curve for the interval-censored failure time data.

Depends R (>= 3.5.0), survival, Iso, icenReg

License GPL (>= 2)

Encoding UTF-8

LazyData true

NeedsCompilation no

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Description

Nonparametric and semiparametric estimations of the time-dependent ROC curve for the interval-censored failure time data.

Details

Package: icsurvROC
 Type: Package
 Version: 0.1.0
 Date: 2018-11-24
 License: GPL (>= 2)

Author(s)

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References

Yunro Chung, Tianxi Cai, Yingye Zheng, Estimating Diagnostic Accuracy Measures for Current Status Survival Data with Application to Prostate Cancer Active Surveillance Study (in progress)

icsurvROC

Interval Censored survival ROC

Description

Nonparametric and semiparametric estimations of the time-dependent ROC curve for the interval-censored failure time data.

Usage

```
icsurvROC(Time, Status, Marker, pred.time, method, wt=NULL, span=NULL)
```

Arguments

Time	Monitoring time
Status	Event indicator (1: event occurs before or at monitoring time; 0: event occurs after monitoring time)
Marker	Prediction or marker value
pred.time	Prediction time of the ROC curve
method	"np" for nonparametric model using local NPMLE; "sp" for semiparametric proportional hazard model
wt	Weight, such as inverse probability weighting
span	Smoothing bandwidth parameter for method="np"

Details

It estimates a time-dependent ROC curve for the current status data based on the local NPMLE if method="np" or proportional hazards model if method="sp". For method="np", optimal bandwidth selection based on maximum likelihood cross validation is used if span is not specified or span=NUL. For method="sp", span is not needed to be specified.

Author(s)

Yunro Chung [cre]

References

Yunro Chung, Tianxi Cai, Yingye Zheng, Estimating Diagnostic Accuracy Measures for Current Status Survival Data with Application to Prostate Cancer Active Surveillance Study (in progress)

Examples

```
Time= c(1,2,5,3,9,8,9,4,6,4)
Status= c(1,1,1,0,1,1,1,0,0,0)
Marker= c(8,2,6,3,1,4,5,1,3,7)

#np at year 3
nobs=length(Time)
span=sd(Marker)*nobs^(-1/7)
RES1=icsurvROC(Time, Status, Marker, pred.time=3, method="np", span=span)
print(RES1)

#sp at year 3
RES2=icsurvROC(Time, Status, Marker, pred.time=3, method="sp")
print(RES2)
```

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*Topic **Semiparametric Cox
proportional hazards, local
NPMLE, maximum
likelihood cross validation**

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