Package 'PieceExpIntensity'

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Type Package

Title Bayesian Model to Find Changepoints Based on Rates and Count
Data

Version 1.0.4

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Description This function fits a reversible jump Bayesian piecewise exponential model that also includes the intensity of each event considered along with the rate of events.

License GPL-2

Encoding UTF-8

LazyData true

Imports Rcpp (>= 0.12.9)

LinkingTo Rcpp, RcppArmadillo

RoxygenNote 6.0.1

NeedsCompilation yes

Repository CRAN

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R topics documented:

PieceExpIntensity   *Runs the PieceExpIntensity sampler and returns posterior results.*

Description

Returns a list of posterior samples along with summaries for the most visited number of split points.

Usage

```
PieceExpIntensity(X, Y, B, Poi)
```

Arguments

X	Vector containing observed event times.
Y	Vector containing poisson count intensities.
B	Number of iterations to run the MCMC with half burned in.
Poi	Prior mean number of split points.

Value

A list of all posterior quantities and a summary of the most commonly visited model.

References

Chapple (2017). Modeling ISIL terror attacks and their intensities via flexible Bayesian piecewise models. Currently Under Review.

Examples

```
B=1000
n=100
X=rexp(n,1)
Y=X
Y[X<.5]=rpois(sum(X<.5),20)
Y[X>.5]=rpois(sum(X>.5),3)
Poi=10
PieceExpIntensity(X,Y,B,Poi)
```

PieceExpIntensity2   *C++ Sampling Function for MCMC*

Description

C++ Sampling Function used in the PieceExpIntensity function.

Usage

```
PieceExpIntensity2(Y, Rates, B, Poi)
```

Arguments

Y	Vector containing observed event times.
Rates	Vector containing poisson count intensities.
B	Number of iterations to run the MCMC with half burned in.
Poi	Prior mean number of split points,

Value

A list of all posterior quantities.

Examples

```
B=1000
n=100
Y=rexp(n,1)
Rates=Y
Rates[Y<.5]=rpois(sum(Y<.5),20)
Rates[Y>.5]=rpois(sum(Y>.5),3)
Poi=10
PieceExpIntensity2(Y,Rates,B,Poi)
```

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