Package 'MEPDF'

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Type Package

Title Multivariate Empirical Density Function

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Author Martin Wiegand, Saralees Nadarajah

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Maintainer Martin Wiegand <Martin.Wiegand@manchester.ac.uk>

Depends R (>= 3.0.1)

Description Based on the input data an n-dimensional cube with sub cells of user specified side length is created. The number of sample points which fall in each sub cube is counted, and with the cell volume and overall sample size an empirical probability can be computed. A number of cubes of higher resolution can be superimposed. The basic method stems from J.L. Bentley in ``Multidimensional Divide and Conquer''. J. L. Bentley (1980) <doi:10.1145/358841.358850>.

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LazyData TRUE

Imports plyr, MASS, pracma

NeedsCompilation no

Repository CRAN

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R topics documented:

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cube   *cube*

Description

Single grid size empirical density function. To be used to construct the epdf function.

Usage

```
cube(data,mx,mn,grid.sizes)
```

Arguments

data	N-dimensional data set.
mx	Upper cropping point of the data.
mn	Lower cropping point of the data.
grid.sizes	Vector of grid sizes for the grid.

Examples

```
library("pracma")
library("plyr")

data<-cbind(rnorm(1000),rnorm(1000))

pdf<-cube(data,mx=c(1,1),mn=c(-1,-1),grid.sizes = c(0.01,0.01))
```

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epdf   *epdf*

Description

Assembles main grid and superimposes grids of different resolution.

Usage

```
epdf(data,max.corner,min.corner,main.gridsize,rescubes)
```

Arguments

data	N-dimensional data set.
max.corner	Upper cropping point of the data.
min.corner	Lower cropping point of the data.
main.gridsize	Vector of grid sizes for the main grid.
rescubes	List of upper and lower cropping points, as well as grid sizes for cubes that are to be superimposed.

Examples

```
library("pracma")
library("plyr")

a<-list(c(-1,-1),c(1,1),c(0.01,0.01))
b<-list(c(-2,-2),c(2,2),c(0.02,0.02))
cubes<-list(a,b)

min.corner = c(-4,-4)
max.corner= c(4,4)
main.gridsize = c(0.05,0.05)

# Data & Density
data<-cbind(rnorm(1000),rnorm(1000))

pdf<-epdf(data,max.corner,min.corner,main.gridsize,rescubes = cubes)
```

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