package ‘ops’

February 20, 2015

Type    Package
Title   Optimal Power Space Transformation
Version 1.0
Date    2012-02-12
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Description Comparison of data by Pearson product-moment correlation coefficients is prone to outliers. The problem can be alleviated by normalizing data with outliers before computing the Pearson correlation coefficient. The sample provides such normalization by optimal power space transformation.

License Apache License 2.0
LazyLoad yes
Repository CRAN
Date/Publication 2012-02-20 06:28:20

R topics documented:

<table>
<thead>
<tr>
<th>Topic</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>ops-package</td>
<td>2</td>
</tr>
<tr>
<td>distance</td>
<td>2</td>
</tr>
<tr>
<td>filter</td>
<td>3</td>
</tr>
<tr>
<td>findP</td>
<td>4</td>
</tr>
</tbody>
</table>

Index 6
Description

Comparison of data by Pearson product-moment correlation coefficients is prone to outliers. The problem can be alleviated by normalizing data with outliers before computing the Pearson correlation coefficient. The sample provides such normalization by optimal power space transformation.

Details

Package: ops
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LazyLoad: yes

Use function findP() to compute the exponent for an optimal power space transformation. Optionally, pre-filter the dataset excluding values that are equal or less a certain threshold by calling function filter().

Author(s)

Micha Sammeth <micha@sammeth.net>

References

Ribeca P. and Sammeth M. (under review)

Examples

```r
x=cbind(rexp(1000),rexp(1000))
p=findP(x)$maxIQR
y=x^p
```

Description

Computes the relative Euclidean distance (i.e., normalized by the respective maxima) of a set of x- and y-coordinates.
filter

Usage

distance(x, y)

Arguments

x  x-coordinates of the data
y  y-coordinates of the data

Value

Returns the set of relative distances obtained from 'x' and 'y'.

Author(s)

M. Sammeth <micha@sammeth.net>

References

Ribeca P. and Sammeth M. (under review)

See Also

findP, filter

Examples

distance(seq(1,10),seq(1,10))

filter  Filter matrix

Description

Filters two columns of a matrix to only contain values greater than a common threshold

Usage

filter(x, ia, ib, t = -1)

Arguments

x  the matrix to be filtered
ia  index of the first column
ib  index of the second column
t  the threshold up to which values are removed by the filtering
findP

Find Power Exponent

Description
findP finds the exponent for an optimal power transformation of data that is to be normalized.

Usage
findP(y, step = 0.01)

Arguments
y a 2D matrix with x- and y-coordinates of raw data in columns 'y[,1]' and 'y[,2]'
step an optional step size for iterating normalization exponents from the interval [0;1]. Default value is '0.01'.

Value
maxIQR The optimal exponent obtained by maximizing the inter-quartile range
minMed The optimal exponent obtained by minimizing the distance to the median
values Data spaces for each exponent iterated during optimization

Author(s)
M. Sammeth <micha@sammeth.net>

References
Ribeca P. and Sammeth M. (under review)
findP

See Also

filter.distance

Examples

x = cbind(rexp(1000), rexp(1000))
p = findP(x)$maxIQR
Index

*Topic \textasciitilde{robust}
  distance, 2
  filter, 3
  findP, 4
  ops-package, 2

*Topic package
  ops-package, 2

distance, 2, 4, 5
filter, 3, 3, 5
findP, 3, 4, 4

ops (ops-package), 2
ops-package, 2