Package 'dccpp'

May 8, 2026

Type Package

Title Fast Computation of Distance Correlations

Version 0.1.0

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Description Fast computation of the distance covariance 'dcov' and distance correlation 'dcor'. The computation cost is only O(n log(n)) for the distance correlation (see Chaudhuri, Hu (2019) <doi:10.48550/arXiv.1810.11332> <doi:10.1016/j.csda.2019.01.016>). The functions are written entirely in C++ to speed up the computation.

License GPL (>= 3)

URL https://dccpp.berrisch.biz/, https://github.com/BerriJ/dccpp

BugReports https://github.com/BerriJ/dccpp/issues

Encoding UTF-8

Imports Rcpp (>= 1.0.8)

LinkingTo Rcpp, RcppArmadillo

RoxygenNote 7.2.3

Suggests testthat (>= 3.0.0)

Config/testthat/edition 3

NeedsCompilation yes

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Repository CRAN

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dcor *Distance Correlation*

Description

Distance Correlation

Usage

```
dcor(x,y)
```

Arguments

x	numeric vector
y	numeric vector

Value

Returns a numeric value: the distance correlation between x and y.

Examples

```
## Not run:

set.seed(1)
x < -rnorm(1000)
y < -x ^ 2

dcor(x, y) # dcor shows dependence between x and y
cor(x, y) # cor does not detect any depencence due to nonlinearity


## End(Not run)
```

dcov *Distance Covariance*

Description

Distance Covariance

Usage

```
dcov(x,y)
```

Arguments

x	numeric vector
y	numeric vector

Details

Implements the algorithm described in Chaudhuri, Hu (2019) doi:10.1016/j.csda.2019.01.016 which only has O(n log(n)) complexity.

Value

Returns a numeric value: the distance covariance between x and y.

Examples

```
## Not run:

set.seed(1)
x < -rnorm(1000)
y < -x ^ 2

dcov(x, y)
dvov(x, x)
dvov(y, y)


## End(Not run)
```

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