Package: JMI (via r-universe)

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Type Package

Title Jackknife Mutual Information

Version 0.1.0

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Description Computes the Jackknife Mutual Information (JMI) between
two random vectors and provides the p-value for dependence
tests. See Zeng, X., Xia, Y. and Tong, H. (2018)
<doi:10.1073/pnas.1715593115>.

License GPL (>= 2)

Encoding UTF-8

LazyData true

Imports Rcpp

LinkingTo Rcpp, RcppArmadillo

RoxygenNote 6.0.1

NeedsCompilation yes

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Repository https://xianlizeng.r-universe.dev

RemoteUrl https://github.com/cran/JMI

RemoteRef HEAD

RemoteSha 4c421101cf2e1505a30d0e117013015433170cc8

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Description

This function provides method for dependence test. It uses permutation test to determine the rejection region.

Usage

```
JMI(x, y, BN = 1000)
```

Arguments

x	n by p sample matrix.
y	n by q sample matrix.
BN	Number of permutations, the default value is 1000.

Value

the output is a list which contains:

- mi: the value of Jackknife Mutual information
- pvalue: the p-value of independence test that based on the permutation of JMI, the value is not provided if BN=0.

References

Zeng, X., Xia, Y., & Tong, H. (2018). Jackknife approach to the estimation of mutual information[J]. Proceedings of the National Academy of Sciences, 201715593.

Examples

```
x <- matrix(rnorm(50*3),50,3)
y <- matrix(rnorm(50*2),50,2)
#calculate the Jackknife Mutual information between x and y.
JMI(x,y,0)$mi
#calculate the p-value of independent test between x and y that based on 500 permutations.
JMI(x,y,500)$pvalue
```

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