

Package ‘rdist’

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Title Calculate Pairwise Distances

Version 0.0.2

Description A common framework for calculating distance matrices.

Depends R (>= 3.2.2)

License GPL

Encoding UTF-8

LazyData true

LinkingTo Rcpp, RcppArmadillo

Imports Rcpp

RoxygenNote 6.0.1

Suggests testthat

NeedsCompilation yes

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rdist *rdist: an R package for distances*

Description

rdist provide a common framework to calculate distances. There are three main functions:

- rdist computes the pairwise distances between observations in one matrix and returns a dist object,
- pdist computes the pairwise distances between observations in one matrix and returns a matrix, and
- cdist computes the distances between observations in two matrices and returns a matrix.

In particular the cdist function is often missing in other distance functions. All calculations involving NA values will consistently return NA.

Usage

```
rdist(X, metric = "euclidean", p = 2L)
```

```
pdist(X, metric = "euclidean", p = 2)
```

```
cdist(X, Y, metric = "euclidean", p = 2)
```

Arguments

X, Y	A matrix
metric	The distance metric to use
p	The power of the Minkowski distance

Details

Available distance measures are (written for two vectors v and w):

- "euclidean": $\sqrt{\sum_i (v_i - w_i)^2}$
- "minkowski": $(\sum_i |v_i - w_i|^p)^{1/p}$
- "manhattan": $\sum_i (|v_i - w_i|)$
- "maximum" or "chebyshev": $\max_i (|v_i - w_i|)$
- "canberra": $\sum_i \left(\frac{|v_i - w_i|}{|v_i| + |w_i|} \right)$
- "angular": $\cos^{-1}(\text{cor}(v, w))$
- "correlation": $\sqrt{\frac{1 - \text{cor}(v, w)}{2}}$
- "absolute_correlation": $\sqrt{1 - |\text{cor}(v, w)|^2}$
- "hamming": $(\sum_i v_i \neq w_i) / \sum_i 1$
- "jaccard": $(\sum_i v_i \neq w_i) / \sum_i 1_{v_i \neq 0 \cup w_i \neq 0}$

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