Package 'rflann'

June 18, 2016

Type Package

Title Basic R Interface to the FLANN C++ Library

Version 1.1.2

Date 2016-05-28

Author Marius Muja, David Lowe and Jeremy Yee

Maintainer Jeremy Yee <jeremyyee@outlook.com.au>

Description Basic R interface for the FLANN C++ library written by Marius Muja and David Lowe. This package was written primarily for another package, 'rcss'. This packages utilises a few features from the FLANN C++ library. When I have time (and if there is sufficient demand), I will add more functions.

URL https://github.com/YeeJeremy/rflann

License GPL

Imports Rcpp (>= 0.11.6)

LinkingTo Rcpp, RcppArmadillo

NeedsCompilation yes

BugReports https://github.com/YeeJeremy/rflann/issues

R topics documented:

Neighbour *K nearest neighbours*

Description

K nearest neighbours

Usage

```
Neighbour(query, ref, k, build = "kdtree", cores = 0, checks = 1)
```

Arguments

query	Matrix or data frame containing the set of query points where each row represents a point.
ref	Matrix or data frame containing the set of reference points where each row represents a point.
k	Number of nearest neighbours to search for.
build	String indicating the search structure to be used: "kdtree", "kmeans", "linear".
cores	Number of cpu cores to be used for searching. If 0, then the maximum allowable cores are used.
checks	Number of checks during searching. Higher value gives better search precision but takes longer. See FLANN C++ manual for more details.

Value

List containing:

indices	Matrix containing the index of the nearest neighbours in the reference set for each query set of points
distances	Matrix containing the distances to the nearest neighbours

Author(s)

Yee, Jeremy

Examples

```
## Find the nearest neighbour using a KD Tree
query <- matrix(rnorm(10), ncol = 2)
reference <- matrix(rnorm(10), ncol = 2)
Neighbour(query, reference, 3, "kdtree", 0, 1)
```

RadiusSearch *Radius searching*

Description

Radius searching

Usage

```
RadiusSearch(query, ref, radius, max_neighbour, build = "kdtree",
cores = 0, checks = 1)
```

Arguments

query	Matrix or data frame containing the set of query points where each row represents a point.
ref	Matrix or data frame containing the set of reference points where each row represents a point.
radius	Squared euclidean distance from each query point.
max_neighbour	Maximum number of points to look for within the radius of each query point.
build	String indicating the search structure to be used: "kdtree", "kmeans", "linear".
cores	Number of cpu cores to be used for searching. If 0, then the maximum allowable cores are used.
checks	Number of checks during searching. Higher value gives better search precision but takes longer. See FLANN C++ manual for more details.

Value

List containing:

indices	List containing the index of points in the reference set that lie in the radius of each query point.
distances	List containing the corresponding squared distances.

Author(s)

Yee, Jeremy

Examples

```
## Radius searching
query <- matrix(rnorm(10), ncol = 2)
reference <- matrix(rnorm(10), ncol = 2)
RadiusSearch(query, reference, 1, 2, "kdtree", 0, 1)
```

Index