Package 'ksNN'

May 8, 2026

Encoding UTF-8

Type Package

Title K* Nearest Neighbors Algorithm

Version 0.1.2

Description Prediction with k* nearest neighbor algorithm
based on a publication by Anava and Levy (2016) <doi:10.48550/arXiv.1701.07266>.

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LazyData TRUE

Imports Rcpp

Depends R(>= 3.0.2)

LinkingTo Rcpp(>= 0.10.6)

RoxygenNote 6.1.1

NeedsCompilation yes

Repository CRAN

Date/Publication 2019-04-11 12:02:37 UTC

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ksNN *This function calculates the prediction value of k* nearest neighbors algorithm.*

Description

This function calculates the prediction value of k* nearest neighbors algorithm.

Usage

```
ksNN(Label, Distance, L_C = 1)
```

Arguments

Label	vectors of the known labels of the samples.
Distance	vectors of the distance between the target sample we want to predict and the other samples.
L_C	parameter of k* nearest neighbors algorithm.

Value

the prediction value(pred) and the weight of the samples(alpha).

Note

This algorithm is based on Anava and Levy(2017).

Examples

```
library(ksNN)
set.seed(1)

#make the nonlinear regression problem
X<-runif(100)
Y<-X^6-3*X^3+5*X^2+2

suffle<-order(rnorm(length(X)))
X<-X[suffle]
Y<-Y[suffle]

test_X<-X[1]
test_Y<-Y[1]

train_X<-X[-1]
train_Y<-Y[-1]

Label<-train_Y
Distance<-sqrt((test_X-train_X)^2)
```

```
pred_ksNN<-ksNN(Label,Distance,L_C=1)

#the predicted value with k*NN
pred_ksNN$pred

#the 'true' value
test_Y
```

---

rcpp_ksNN *This function calculates the prediction value of k* nearest neighbors algorithm.*

Description

This function calculates the prediction value of k* nearest neighbors algorithm.

Usage

```
rcpp_ksNN(Label, Distance, L_C = 1)
```

Arguments

Label	vectors of the known labels of the samples.
Distance	vectors of the distance between the target sample we want to predict and the other samples.
L_C	parameter of k* nearest neighbors algorithm.

Value

the prediction value(pred) and the weight of the samples(alpha).

Note

This algorithm is based on Anava and Levy(2017).

Examples

```
library(ksNN)
set.seed(1)

#make the nonlinear regression problem
X<-runif(100)
Y<-X^6-3*X^3+5*X^2+2

suffle<-order(rnorm(length(X)))
X<-X[suffle]
Y<-Y[suffle]

test_X<-X[1]
```

```
test_Y<-Y[1]

train_X<-X[-1]
train_Y<-Y[-1]

Label<-train_Y
Distance<-sqrt((test_X-train_X)^2)

pred_ksNN<-rcpp_ksNN(Label,Distance,L_C=1)

#the predicted value with k*NN
pred_ksNN$pred

#the 'true' value
test_Y
```

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