Package 'MAKL'

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Title Multiple Approximate Kernel Learning (MAKL)

Version 1.0.1

Description R package associated with the Multiple Approximate Kernel Learning (MAKL) algorithm proposed in <doi:10.1093/bioinformatics/btac241>. The algorithm fits multiple approximate kernel learning (MAKL) models that are fast, scalable and interpretable.

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Encoding UTF-8

RoxygenNote 7.1.2

Imports AUC, grplasso

Suggests rmarkdown, knitr

VignetteBuilder knitr

NeedsCompilation no

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makl_test *Test the Multiple Approximate Kernel Learning (MAKL) Model*

Description

Binary classification of the test data, using the MAKL model resulted from makl_train().

Usage

```
makl_test(X, y, makl_model)
```

Arguments

X	test dataset, matrix of size T x d.
y	response vector of length T, containing only -1 and 1.
makl_model	a list containing the MAKL model returning from makl_train().

Value

a list containing the predictions for test instances and the area under the ROC curve (AUROC) values with corresponding number of used kernels for prediction.

makl_train *Train a Multiple Approximate Kernel Learning (MAKL) Model*

Description

Train a MAKL model to be used as an input to makl_test().

Usage

```
makl_train(
  X,
  y,
  D = 100,
  sigma_N = 1000,
  CV = 1,
  lambda_set = c(0.9, 0.8, 0.7, 0.6),
  membership
)
```

Arguments

X	training dataset, matrix of size N x d.
y	response vector of length N, containing only -1 and 1.
D	numeric value related to the number of random features to be used for approximation.
sigma_N	numeric value preferably smaller than N, used to calculate sigma to create random features.
CV	integer value between 0 and N. If CV is equal to 0 or 1, no cross validation is performed. If CV is greater than or equal to 2, CV is assigned as fold count in the cross validation.
lambda_set	a continuous number between 0 and 1, used for regularization.
membership	a list of length of number of groups, containing feature memberships to each group.

Value

a list containing the MAKL model and related parameters to be used in makl_test().

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