Package 'BrokenAdaptiveRidge'

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Type Package

Title Broken Adaptive Ridge Regression with Cyclops

Version 1.0.0

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Description Approximates best-subset selection (L0) regression with
an iteratively adaptive Ridge (L2) penalty for large-scale models.
This package uses Cyclops for an efficient implementation and the
iterative method is described in Kawaguchi et al (2020)
<doi:10.1002/sim.8438> and Li et al (2021)
<doi:10.1016/j.jspi.2020.12.001>.

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Depends R (>= 3.2.2), Cyclops (>= 3.0.0)

Imports futile.logger, bit64

Suggests testthat, survival, knitr, rmarkdown

Encoding UTF-8

RoxygenNote 7.1.2

NeedsCompilation no

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R topics documented:

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createBarPrior   *Create a BAR Cyclops prior object*

Description

createBarPrior creates a BAR Cyclops prior object for use with fitCyclopsModel.

Usage

```
createBarPrior(
  penalty = "bic",
  exclude = c(),
  forceIntercept = FALSE,
  fitBestSubset = FALSE,
  initialRidgeVariance = 10000,
  tolerance = 1e-08,
  maxIterations = 10000,
  threshold = 1e-06,
  delta = 0
)
```

Arguments

penalty	Specifies the BAR penalty; possible values are 'BIC' or 'AIC' or a numeric value
exclude	A vector of numbers or covariateId names to exclude from prior
forceIntercept	Logical: Force intercept coefficient into regularization
fitBestSubset	Logical: Fit final subset with no regularization
initialRidgeVariance	
	Numeric: variance used for algorithm initiation
tolerance	Numeric: maximum abs change in coefficient estimates from successive iterations to achieve convergence
maxIterations	Numeric: maxium iterations to achieve convergence
threshold	Numeric: absolute threshold at which to force coefficient to 0
delta	Numeric: change from 2 in ridge norm dimension

Value

A BAR Cyclops prior object of class inheriting from "cyclopsPrior" for use with fitCyclopsModel.

Examples

```
prior <- createBarPrior(penalty = "bic")
```

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createFastBarPrior   *Create a fastBAR Cyclops prior object*

Description

createFastBarPrior creates a fastBAR Cyclops prior object for use with `fitCyclopsModel`.

Usage

```
createFastBarPrior(
  penalty = 0,
  exclude = c(),
  forceIntercept = FALSE,
  fitBestSubset = FALSE,
  initialRidgeVariance = 10000,
  tolerance = 1e-08,
  maxIterations = 10000,
  threshold = 1e-06
)
```

Arguments

penalty	Specifies the BAR penalty
exclude	A vector of numbers or covariateId names to exclude from prior
forceIntercept	Logical: Force intercept coefficient into regularization
fitBestSubset	Logical: Fit final subset with no regularization
initialRidgeVariance	
	Numeric: variance used for algorithm initiation
tolerance	Numeric: maximum abs change in coefficient estimates from successive iterations to achieve convergence
maxIterations	Numeric: maximum iterations to achieve convergence
threshold	Numeric: absolute threshold at which to force coefficient to 0

Value

A BAR Cyclops prior object of class inheriting from `"cyclopsPrior"` for use with `fitCyclopsModel`.

Examples

```
nobs = 500; ncovs = 100
prior <- createFastBarPrior(penalty = log(ncovs), initialRidgeVariance = 1 / log(ncovs))
```

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