Package 'HomUHet'

February 16, 2021

Title Identifying and Separating Homogeneous and Heterogeneous Predictors

Version 0.0.0.9000

Date 2020-01-22

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Depends glmnet, gglasso, dplyr

Imports MASS

Description This package contains functions to identify and separate predictors with homogeneous or heterogeneous effects across datasets.

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Encoding UTF-8

LazyData true

Roxygen list(markdown = TRUE)

RoxygenNote 7.1.1

Suggests knitr, rmarkdown

VignetteBuilder knitr

NeedsCompilation no

R topics documented:

HomUHet-package *identify homogeneous and heterogeneous effects of predictors in multiple datasets*

Description

classify the predictors into homogeneous, heterogeneous and unassociated categories. outputs the solution path plots.

Details

The only function you're likely to need from **HomUHet** is `HomUHet`. Otherwise refer to the vignettes to see how to format the documentation.

Author(s)

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HomUHet *fit a two-step penalized regression model*

Description

This function outputs the names of predictors with homogeneous or heterogeneous predictors across multiple data sets, the estimates of predictors, and solution plots

Usage

```
HomUHet(x, y, sid)
```

Arguments

`x`	the predictor matrix. a matrix of n x J containing observations from all studies for all predictors
`y`	the response variable. a vector of n observations for the response variable
`sid`	a vector of integers indexing the study id for each observation in data

Value

the names of identified predictors and their estimated effects

`Homo`	a character string of names of homogeneous predictors
`Heter`	a character string of N=names of heterogeneous predictors
`coefficients`	estimated coefficients of the homogeneous and heterogeneous predictors in K studies

`HomUHet.plot` *Plot the solution path from HomUHet*

Description

This function outputs the solution path plots

Usage

```
HomUHet.plot(fit, y_name = NULL)
```

Arguments

`fit`	the output object from HomUHet
`y_name`	if needed, a response variable name for the solution path plots. Default is NULL.

Value

solution path plots from Step 1 and Step 2

`HomUHet.sim` *simulate multiple data sets with both homogeneous and heterogeneous effects from the predictors*

Description

this function simulate data

Usage

```
HomUHet.sim(
  Pred_type = c("Con", "SNP"),
  J = 1400,
  K = c(4, 10),
  level = c("l", "m", "h"),
  rho = 0.5,
  sigma = 2,
  nlower = 50,
  nupper = 300
)
```

Arguments

`Pred_type`	the predictor type; choose between continuous or SNP
`J`	the number of predictors. J should be at least 300.
`K`	the number of studies.
`level`	the level of heterogeneity. "l" stands for low, "m" stands for medium, and "h" stands for high.

rho	a number between 0 and 1. controlling the degree of correlation between predictors
sigma	a positive number. controlling the added noise to the simulated response variable
nlower	the lower bound of the K sample sizes
nupper	the upper bound of the K sample sizes

Value

the simulated data

x	an n x J matrix containing simulated predictors
y	an n-length vector of simulated response variable
sid	an n-length vector of integers containing the study id for each observation in data

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