Package 'iSRRR'

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Type Package

Title Integrative sparse reduced-rank regression via orthogonal rotation for analysis of high-dimensional multi-source data

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Description Integrative sparse reduced-rank regression (iSRRR) model to identify the structural association of multi-source data on multiple responses by assuming structured decomposition of the coefficient matrix.

License GPL-3

Imports Rcpp (>= 1.0.8.3), ggplot2, MASS, dplyr, mnormt, plyr, GPArotation, gglasso, gtools, rrr, plot.matrix

LinkingTo Rcpp, RcppArmadillo

RoxygenNote 7.2.1

Encoding UTF-8

NeedsCompilation yes

R topics documented:

| iSRRR | *iSRRR: Integrative Sparse Reduced Rank Regression* |

Description

The iSRRR solves the constrained optimization problem with sparse regularization:

$$\frac{1}{2n}\|Y - XBA^T\|_F^2 + \lambda \sum \sum \|b_{ik}\|_2 \text{ subject to } A \in \mathcal{T}(v), \ A \in \mathcal{O}_s(q, r)$$

Usage

```
iSRRR(
  X,
  Y,
  pvec,
  nrank,
  cutoff,
  params = NULL,
  control = NULL,
  trueB = NULL,
  use.gglasso = TRUE
)
```

Arguments

X	An n by p design matrix.
Y	An n by q response matrix.
pvec	A numeric vector of the number of variable for each dataset.
nrank	The rank of matrices to be estimated.
cutoff	Hard-thresholding parameter. Default is 0 (no thresholding).
params	A list with lambda.seq=NULL, nlambda=5, lambda.factor=1e-4, log.scale=TRUE, and group.size=FALSE.
control	A list with best=FALSE, early.stop=TRUE, rot.method="quartimax" maxit.B=3e8, eps.B=1e-8, maxit.mse=50, eps.mse=1e-6, X.scale=c("group", "each"), Y.scale=FALSE, verbose=FALSE, and threads=1.
trueB	A list contains X with dimension n by p and Y with dimension n by q.
use.gglasso	Default is TRUE.

Value

A list with output objects

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References

No reference.

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