Package ‘abglasso’

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Title Adaptive Bayesian Graphical Lasso

Version 0.1.1

Description Implements a Bayesian adaptive graphical lasso data-augmented block Gibbs sampler. The sampler simulates the posterior distribution of precision matrices of a Gaussian Graphical Model. This sampler was adapted from the original MATLAB routine proposed in Wang (2012) <doi:10.1214/12-BA729>.

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Imports MASS, pracma, stats, statmod

Suggests testthat

NeedsCompilation no

Author Jarod Smith [aut, cre] (<https://orcid.org/0000-0003-4235-6147>),
Mohammad Arashi [aut] (<https://orcid.org/0000-0003-4793-5674>),
Andriette Bekker [aut] (<https://orcid.org/0000-0002-5881-9241>)

Maintainer Jarod Smith <jarodsmith706@gmail.com>

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R topics documented:

BayesGlassoBlock *Adaptive Bayesian graphical lasso MCMC sampler*

Description

A Bayesian adaptive graphical lasso data-augmented block Gibbs sampler. The sampler is adapted from the MATLAB routines used in Wang (2012).

Usage

```
BayesGlassoBlock(X, burnin = 1000, nmc = 2000)
```

Arguments

X	Numeric matrix.
burnin	An integer specifying the number of burn-in iterations.
nmc	An integer specifying the number of MCMC samples.

Value

list containing:

Sig A p by p by nmc array of saved posterior samples of covariance matrices.

Omega A p by p by nmc array of saved posterior samples of precision matrices.

Lambda A 1 by nmc vector of saved posterior samples of lambda values.

References

Wang, H. (2012). Bayesian graphical lasso models and efficient posterior computation. *Bayesian Analysis, 7*(4). doi: 10.1214/12BA729.

Examples

```
# Generate true covariance matrix:
p            <- 10
n            <- 50
SigTrue      <- pracma::Toeplitz(c(0.7^rep(1:p-1)))
CTrue        <- pracma::inv(SigTrue)
# Generate expected value vector:
mu           <- rep(0,p)
# Generate multivariate normal distribution:
set.seed(123)
X            <- MASS::mvrnorm(n,mu=mu,Sigma=SigTrue)
abglasso_post <- BayesGlassoBlock(X,burnin = 1000,nmc = 2000)
```

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