Package ‘nets’
February 20, 2015

Type    Package
Title   Network Estimation for Time Series
Version  0.1
Date    2012-09-03
Author  Christian Brownlees
Maintainer  Christian Brownlees <christian.brownlees@upf.edu>
Depends  igraph
Description  The NETS package provides routines for the estimation of sparse long run partial correlation networks for time series data
License   GPL
LazyLoad  yes
NeedsCompilation yes
Repository  CRAN
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R topics documented:

nets-package  .............................................................. 1
nets  ................................................................. 2

Index

nets-package  Network Estimator for Time Series

Description

The NETS package provides routines for the estimation of sparse long run partial correlation networks for time series data as well as other types of sparse networks.

Details
Author(s)
Christian Brownlees
Maintainer: Christian Brownlees

References

Description

'nets' is used to fit sparse long run partial correlation networks for time series using the NETS algorithm as well as other types of sparse networks.

Usage

nets( y, type='lrpc', algorithm='default', p=1, lambda, verbose=FALSE )

Arguments

y data, an T x N matrix, each column being a data time series.
type network type: Long Run Partial Correlation (lrpc), Partial Correlation (pc) or Granger (g).
p VAR order (for Granger)
algorithum Optimization algorithm to be used.
lambda shrinkage parameter
verbose extra output messages

Details

The nets procedure can be used to fit long run partial correlation networks, partial correlation and Granger networks.
Value

The return value of the nets method is a network object.

Author(s)

Christian Brownlees

References


Examples

```r
N <- 3
t <- 500

# A
A <- matrix( 0, N, N )
A[1,1] <- 0.71; A[1,2] <- 0.00; A[1,3] <- 0.00;
A[2,1] <- 0.00; A[2,2] <- 0.63; A[2,3] <- 0.00;
A[3,1] <- 0.00; A[3,2] <- 0.00; A[3,3] <- 0.10;

# Simulate Process
y <- matrix( )
eps <- matrix( rnorm(T*N,0,1) , T , N )
for( t in 2:T ){
  for( i in 1:N ){
    y[t,i] = sum( A[i,] * y[t-1,] ) + eps[t,i]
  }
}

network <- nets(y,type='g',lambda=1,verbose=TRUE)

print( cbind( A , rep(NA,N) , round( network$A[1,,] , 2 ) ) )
```
Index

*Topic **multivariate timeseries**
  nets, 2

*Topic **network**
  nets, 2

*Topic **package**
  nets-package, 1

nets, 2
nets-package, 1

plot.nets (nets), 2
print.nets (nets), 2