Package: bahc (via r-universe)

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Type Package

Title Filter Covariance and Correlation Matrices with
Bootstrapped-Averaged Hierarchical Ansatz

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Description A method to filter correlation and covariance matrices by
averaging bootstrapped filtered hierarchical clustering and
boosting. See Ch. Bongiorno and D. Challet, Covariance matrix
filtering with bootstrapped hierarchies (2020)
<arXiv:2003.05807> and Ch. Bongiorno and D. Challet, Reactive
Global Minimum Variance Portfolios with k-BAHC covariance
cleaning (2020) <arXiv:2005.08703>.

License GPL

Depends R (>= 3.5.0), fastcluster, matrixStats

Encoding UTF-8

LazyData true

RoxygenNote 7.1.0

NeedsCompilation no

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Repository https://damienchallet.r-universe.dev

RemoteUrl https://github.com/cran/bahc

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Contents

filterCorrelation	*Compute the BAHC correlation matrix.*

Description

Compute the BAHC correlation matrix.

Usage

```
filterCorrelation(x, k = 1, Nboot = 100)
```

Arguments

x	A matrix: $x_{i,f}$ is feature f of object i
k	The order of filtering. $k = 1$ corresponds to BAHC.
Nboot	The number of bootstrap copies

Value

The BAHC-filtered correlation matrix of x.

Examples

```
r=matrix(rnorm(1000),nrow=20)   # 20 objects, 50 features each
Cor_bahc=filterCorrelation(r)
```

filterCovariance	*Compute the BAHC covariance matrix.*

Description

Compute the BAHC covariance matrix.

Usage

```
filterCovariance(x, k = 1, Nboot = 100)
```

Arguments

x	A matrix: $x_{i,f}$ is feature f of object i
k	The order of filtering. $k = 1$ corresponds to BAHC.
Nboot	The number of bootstrap copies

Value

The BAHC-filtered correlation matrix of x.

Examples

```
r=matrix(rnorm(1000),nrow=20)    # 20 objects, 50 features each
sigma=exp(runif(20))
rs=t(sigma %*% r) %*% sigma
Cov_bahc=filterCovariance(rs)
```

Index