Package 'uskewFactors'

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Type Package

Title Model-Based Clustering via Mixtures of Unrestricted Skew-t Sactor Analyzer Models

Version 2.0

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Description Implements mixtures of unrestricted skew-t factor analyzer models via the EM algorithm.

Depends tmvtnorm, mvtnorm, MCMCpack, MASS, stats

License GPL (>= 2)

NeedsCompilation no

Repository CRAN

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Contents

`Swiss Banknote Data` *The Swiss Banknote Data*

Description

This package contains measurements on 200 Swiss banknotes: 100 genuine and 100 counterfeit. The variables are length of bill, width of left edge, width of right edge , bottom margin width and top margin width. All measurements are in millimetres. The data source is noted below. This data is also available in the alr package in R.

Usage

```
data(banknote)
```

References

Flury, B. and Riedwyl, H. (1988). Multivariate Statistics: A practical approach. London: Chapman and Hall.

Examples

```
data(banknote) # Loads the brown bread data set
head(banknote) # Displays the first six rows of the brown bread data set
```

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uskewFA *Mixtures of 'Unrestricted' Skew-t Factor Analyzers via the EM algorithm*

Description

Fits a mixture of 'unrestricted' skew-t factor analyzers via the EM algorithm for estimation of model parameters

Usage

```
uskewFA(x, G, q, init=1, max.it=100)
```

Arguments

x	A numeric matrix.
G	The number of mixture components to fit.
q	The number of latent factors.
init	This number controls the starting values that are used: (1) k-means, or (2) random.
max.it	The maximum number of iterations of the EM algorithm.

Value

map	A vector of the maximum a posteriori group memberships.
bic	The value of the Bayesian Information Criterion.
zhat	The matrix of estimated probabilities of group membership.
likelihood	A vector containing the value of the complete-data log-likelihood computed at each iteration of the EM algorithm.

Note

This package contains measurements on 200 Swiss banknotes: 100 genuine and 100 counterfeit. The variables are length of bill, width of left edge, width of right edge , bottom margin width and top margin width. All measurements are in millimetres. The data source is noted below.

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References

Murray, P.M., Browne, R.P., and McNicholas, P.D. (2014), "Mixtures of 'Unrestricted' Skew-t Factor Analyzers". Arxiv preprint arXiv:1310.6224

See Also

Flury, B. and Riedwyl, H. (1988). Multivariate Statistics: A practical approach. London: Chapman and Hall.

Examples

```
data("banknote")
x=banknote[,c(5,6)]
# We let max.it=3 for a speedy illustration.
# More  iterations are needed to ensure
# convergence.
results=uskewFA(x,G=2,q=1,max.it=3)
results
```

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uskewFactors *Model-Based Clustering via Mixtures of 'Unrestricted' Skew-t Factor Analyzers*

Description

Contains the function uskewFA for fitting mixtures of 'unrestricted' skew-t factor analyzer models

Details

Package:	uskewFactors
Type:	Package
Version:	2.0
Date:	2016-05-20
License:	WGPL (>=2)

Author(s)

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References

Murray, P.M., Browne, R.P., and McNicholas, P.D. (2014), "Mixtures of 'Unrestricted' Skew-t Factor Analyzers". Arxiv preprint arXiv:1310.6224

See Also

Details, references, and examples are given under uskewFA.

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