Package 'Homework2'

December 4, 2013

Type Package

Title Estimate the unknown parameters of a mixture of 2 Normal distributions

Version 1.0

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Description This package gives a function to estimate the unknown parameters of a mixture of 2 Normal distributions using Newtons Method or EM Algorithm

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`Homework2-package` *Estimate unknown parameters from a mixture of 2 normal distributions*

Description

This package gives a function to estimate the 5 unknown parameters, including a proportion parameter lambda, two mean mu1 and mu2, and two variance parameters sigma1 and sigma2, using Newton's method or EM algorithm

Details

Package:	Homework2
Type:	Package
Version:	1.0
Date:	2013-12-04
License:	GPL

In order to use this package, you should indicate the method you want to use. If you don't want to set the maximum iteration numbers, tolerance and initialization parameters, they will be set by default.

Author(s)

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References

PH140.778, Professor Roger Peng

`hw2_data` *Data description of homework2*

Description

This data is drawn from a mixture of 2 normal distributions with given parameters

Usage

```
data(hw2_data)
```

Format

A data frame with 19600 observations of mixture model.

Source

From Professor Roger Peng

References

PH140.778 Professor Roger Peng

Examples

```
data(hw2_data)
```

`mixture` *Estimate Unknown parameters from a mixture of 2 normal distribution*

Description

This package gives a function to estimate the 5 unknown parameters from a mixture of 2 normal distributions

Usage

```
mixture(y, method, maxit = NULL, tol = 1e-08, param0 = NULL)
```

Arguments

`y`	dataset sampling from a mixture of 2 normal distributions
`method`	"EM" stands for EM algorithm, "newton" stands for Newton's method'
`maxit`	maximum iteration numbers. By default, EM is 500, Newton is 100
`tol`	level of tolerance. The default level is 1e-8
`param0`	initialization parameter

Details

You need to set the desired method when using this function. Newton's method requires a good initialization parameter. Therefore, it would be better to use default set

Value

`mle`	max likelihood parameters
`stderr`	asymptotic stderr

Author(s)

Lu Li

References

PH140.778, Professor Roger Peng

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