

Package ‘MERO’

January 20, 2025

Title Performing Monte Carlo Expectation Maximization Random Forest
Imputation for Biological Data

Version 0.1.2

Author Mohamed Soudy [aut, cre]

Maintainer Mohamed Soudy <MohmedSoudy2009@gmail.com>

Description

Perform missing value imputation for biological data using the random forest algorithm, the imputation aim to keep the original mean and standard deviation consistent after imputation.

License GPL-3

Encoding UTF-8

RoxygenNote 7.1.2

Imports missForest, ggpubr, progress, doParallel, foreach

NeedsCompilation no

Repository CRAN

Date/Publication 2023-02-24 16:40:02 UTC

Contents

EvalImp	2
MERO	2
PlotCorrelateMean	3
RMSE	3
Index	5

EvalImp	<i>Evaluate the imputed data sets and select the best data set</i>
---------	--

Description

The function is evaluate the imputed data sets based on the mean and standard deviation

Usage

```
EvalImp(Originaldata, ImputedSets ,Imputed.mean, Imputed.sd)
```

Arguments

Originaldata	data frame of original data containing the missing values
ImputedSets	list of imputed data frames
Imputed.mean	data frame of the means of the imputed data sets
Imputed.sd	data frame of the standard deviations of the imputed data sets

Value

The best data frame which mean and standard deviation are close to the original data

Author(s)

Mohamed Souly <Mohmedsoudy2009@gmail.com>

MERO	<i>Perform Monte Carlo Expectation Maximization Random Forest Imputation</i>
------	--

Description

The function is used to impute the missing data using Monte Carlo Expectation Maximization Random Forest Imputation

Usage

```
MERO(Data, ntree = 100, Nsets = 5)
```

Arguments

Data	a data matrix with missing values. The columns correspond to the variables and the rows to the observations.
ntree	number of trees to grow in each forest.
Nsets	number of simulations/ data sets to be generated.

Value

A list containing data sets and imputed means, and imputed standard deviation.

Author(s)

Mohamed Soudy <Mohmedsoudy2009@gmail.com>

PlotCorrelateMean	<i>Plot the correlation in scatter plot between original mean and imputed mean</i>
-------------------	--

Description

The function is used to plot the correlation between the imputed mean and original mean

Usage

```
PlotCorrelateMean(OriginalMean, ImputedMean)
```

Arguments

OriginalMean	means of the original data
ImputedMean	means of the imputed data

Value

The scatter plot

RMSE	<i>Calculate Root Mean Square Error 'RMSE' between vectors</i>
------	--

Description

The function is used to calculate the root mean square error between two vectors

Usage

```
RMSE(Actual, Predicted)
```

Arguments

Actual	Vector of actual data
Predicted	vector of predicted data

Value

The root mean square error between the two input vectors

Author(s)

Mohamed Soudy <Mohmedsoudy2009@gmail.com>

Examples

`RMSE(c(1,2,3), c(10,20,30))`

Index

EvalImp, [2](#)

MERO, [2](#)

PlotCorrelateMean, [3](#)

RMSE, [3](#)