# Package 'MERO'

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

**Version** 0.1.1

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**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

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## R topics documented:

## EvalImp *Evaluate the imputed data sets and select the best data set*

### 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 Soudy <Mohmedsoudy2009@gmail.com>

## MERO *Perform Monte Carlo Expectation Maximization Random Forest Imputation*

### 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>

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`PlotCorrelateMean` *Plot the correlation in scatter plot between original mean and imputed mean*

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## 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

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`RMSE` *Calculate Root Mean Square Error 'RMSE' between vectors*

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## 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))
```

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