Package 'VVD'

June 8, 2021

Title Decomposes time series based on the EEMD method

Version 1.0.0

Description
Decomposes Time series through different functions and plots different aspects of the process.

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Imports EMD,
fpp,
ggplot2,
patchwork,
plotrix,
RColorBrewer,
readr,
Rlibeemd,
stats,
xts

Depends tidyverse

R topics documented:

IMF_maker — *Makes Ensemble Empiric Mode Decomposition for a given Time Series*

Description

Makes Ensemble Empiric Mode Decomposition for a given Time Series

Usage

```
IMF_maker(ts, nb_imf)
```

Arguments

ts	time series in xts format
nb_imf	chosen number of IMFs

Value

data frame containing the IMF s of a given time series

Examples

```
library(fpp)
data(a10)
VVD::IMF_maker(a10,6)
```

IMF_multi_plot — *Combines all IMF s plots into one graph*

Description

function that plots all IMFs into one combined graph

Usage

```
IMF_multi_plot(ts)
```

Arguments

ts	given time series

Value

combined plots

Examples

```
library(fpp)
data(a10)
VVD::IMF_multi_plot(a10)
```

`IMF_number` *Finds appropriate number of IMFs for a given time series*

Description

Finds appropriate number of IMFs for a given time series

Usage

```
IMF_number(ts)
```

Arguments

`ts`	time series to decompose in xts format

Value

the appropriate number of IMF s

Examples

```
library(fpp)
data(a10)
VVD::IMF_number(a10)
```

`IMF_plot` *Plots a chosen IMF of an EEMD time series*

Description

Plots a chosen IMF of an EEMD time series

Usage

```
IMF_plot(ts, imf)
```

Arguments

`ts`	time series to manipulate
`imf`	the index of the IMF you want to plot

Examples

```
library(fpp)
data(a10)
#' VVD::IMF_plot(a10,2)
```

IMF_SCA *Testing the sationarity of a given time series using EEMD method*

Description

Testing the sationarity of a given time series using EEMD method

Usage

```
IMF_SCA(ts, imf_nb, imf_chosen, beta)
```

Arguments

ts	time series data in xts format
imf_nb	number of imfs of EEMD
imf_chosen	chosen imf to be tested
beta	framing value 1-beta , 1+beta

Value

a boolean True if test is valid

Examples

```
library(fpp)
data(a10)
VVD::IMF_SCA(a10,6,2,0.3)
```

IMF_season *Funds the seasonality of the a given time series*

Description

Funds the seasonality of the a given time series

Usage

```
IMF_season(ts, pl)
```

Arguments

ts	given time series in xts
plot	boolean that returns a plot of the seasonality if true is given

Value

seasonality of the a given time series

Examples

```
library(fpp)
data(a10)
VVD::IMF_season(a10,TRUE)
```

`IMF_trend` *Fonds the trend of a given time series*

Description

Fonds the trend of a given time series

Usage

```
IMF_trend(ts, pl)
```

Arguments

`ts`	time series xts format
`plot`	boolean if True Plots the trend

Value

returns an xts variable containing a

Examples

```
library(fpp)
data(a10)
VVD::IMF_trend(a10,TRUE)
```

`modeR` *Mode of of integers vector*

Description

Mode of of integers vector

Usage

```
modeR(v)
```

Arguments

`v`	vector of integers

Value

integer with the mode value of the given vector

Examples

```
modeR(rpois(n = 50, lambda = 10))
```

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