Package ‘WaveletSVR’

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Type Package

Title Wavelet-SVR Hybrid Model for Time Series Forecasting

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Author Ranjit Kumar Paul [aut, cre],
Md Yeasin [aut]

Maintainer Ranjit Kumar Paul <ranjitstat@gmail.com>

Description The main aim of this package is to combine the advantage of wavelet and Support Vector Regression (SVR) models for time series forecasting. This package also gives the accuracy measurements in terms of Root Mean Square Error (RMSE) and Mean Absolute Prediction Error (MAPE). This package is based on the algorithm of Raimundo and Okamoto (2018) <DOI:10.1109/INFOCT.2018.8356851>.

License GPL-3

Encoding UTF-8

RoxygenNote 7.1.2

Imports stats, wavelets, fracdiff, forecast, e1071, tsutils

NeedsCompilation no

Repository CRAN

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WaveletFitting

Wavelet Transform Using Maximal Overlap Discrete Wavelet Transform (MODWT) Algorithm

Description

Transforms the time series data by using hybrid MODWT algorithm.

Usage

WaveletFitting(  
  ts,  
  Wvlevels,  
  WFilter = "haar",  
  bndry = "periodic",  
  FFlag = TRUE  
)

Arguments

- **ts**: Univariate time series
- **Wvlevels**: The level of wavelet decomposition
- **WFilter**: Wavelet filter used in the decomposition
- **bndry**: The boundary condition of wavelet decomposition: 'periodic' or 'reflection'
- **FFlag**: The FastFlag condition of wavelet decomposition: True or False

Value

- **WaveletSeries**: The wavelet transform of the series

References


Examples

```r
data<-rnorm(100,mean=100,sd=50)
Wavelet<-WaveletFitting(ts=data,Wvlevels=3,WFilter='haar',bndry='periodic',FFlag=TRUE)
```
WaveletFittingsvr

Wavelet-SVR Hybrid Model for Forecasting

Description

The main aim of this package is to combine the advantage of wavelet and Support Vector Regression (SVR) models for time series forecasting. This package also gives the accuracy measurements in terms of Root Mean Square Error (RMSE) and Mean Absolute Prediction Error (MAPE).

Usage

WaveletFittingsvr(
  ts,
  tlag = ACF,
  Waveletlevels,
  WaveletFilter = "haar",
  boundary = "periodic",
  FastFlag = TRUE,
  SplitRatio = 0.8
)

Arguments

ts Univariate time series

tlag Number of lags

Waveletlevels The level of wavelet decomposition

WaveletFilter Wavelet filter use in the decomposition

boundary The boundary condition of wavelet decomposition

FastFlag The FastFlag condition of wavelet decomposition: True or False

SplitRatio Training and testing data split

Value

- TrainFittedValue - Fitted value of train data
- TestPredictedValue - Predicted value of test data
- AccuracyTable - RMSE and MAPE of train and test data

References


Examples

data<-rnorm(100,mean=100,sd=50)
WSVR<-WaveletFittingsvr(ts=data,tlag=2,Waveletlevels=3)
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