Package ‘WaveletANN’

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Type Package
Title Wavelet ANN Model
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Description The wavelet and ANN technique have been combined to reduce the effect of data noise. This wavelet-ANN conjunction model is able to forecast time series data with better accuracy than the traditional time series model. This package fits hybrid Wavelet ANN model for time series forecasting using algorithm by Anjoy and Paul (2017) <DOI:10.1007/s00521-017-3289-9>.
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R topics documented:

WaveletFitting ................................................................. 2
WaveletFittingann ............................................................ 3

Index 5
WaveletFitting

Description

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

Usage

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

Arguments

- ts: Univariate time series
- Wvlevels: The level of wavelet decomposition
- Filter: Wavelet filter
- bndry: The boundary condition of wavelet decomposition
- FFlag: The FastFlag condition of wavelet decomposition: True or False

Value

- WaveletSeries - The wavelet transform of the series

References


Examples

data<-rnorm(100,mean=100,sd=50)
WaveletFitting(ts=data,Wvlevels=3,Filter="haar",bndry="periodic",FFlag=TRUE)
WaveletFittingann

Wavelet-ANN Hybrid Model for Forecasting

Description

Wavelet-ANN Hybrid Model for Forecasting

Usage

WaveletFittingann(
  ts,
  Waveletlevels,
  Filter = "haar",
  boundary = "periodic",
  FastFlag = TRUE,
  nonseaslag,
  seaslag = 1,
  hidden,
  NForecast
)

Arguments

ts             Univariate time series
Waveletlevels  The level of wavelet decomposition
Filter         Wavelet filter
boundary       The boundary condition of wavelet decomposition
FastFlag       The FastFlag condition of wavelet decomposition: True or False
nonseaslag     Number of non seasonal lag
seaslag        Number of non seasonal lag
hidden         Size of the hidden layer
NForecast      The forecast horizon: A positive integer

Value

- Finalforecast - Forecasted value
- FinalPrediction - Predicted value of train data
- Accuracy - RMSE and MAPE for train data

References

Examples

\begin{verbatim}
N <- 100
PHI <- 0.2
THETA <- 0.1
SD <- 1
M <- 0
D <- 0.2
Seed <- 123
set.seed(Seed)
Sim.Series <- fracdiff::fracdiff.sim(n = N, ar = c(PHI), ma = c(THETA), d = D, rand.gen = rnorm, sd = SD, mu = M)
simts <- as.ts(Sim.Series$series)
WaveletForecast <- WaveletFittingann(ts = simts, Waveletlevels = 3, Filter = 'd4', nonseaslag = 5, hidden = 3, NForecast = 5)
\end{verbatim}
Index

WaveletFitting, 2
WaveletFittingann, 3