Package ‘GMDH’

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Type Package

Title Predicting and Forecasting Time Series via GMDH-Type Neural Network Algorithms

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Depends MASS, stats

Author Osman Dag, Ceylan Yozgatligil

Maintainer Osman Dag <osman.dag@hacettepe.edu.tr>

Description Group method of data handling (GMDH) - type neural network algorithm is the heuristic self-organization method for modelling the complex systems. In this package, GMDH-type neural network algorithms are applied to predict and forecast a univariate time series.

License GPL (>= 2)

NeedsCompilation no

Repository CRAN

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GMDH-package

Predicting and Forecasting Time Series via GMDH-Type Neural Network Algorithms

Description

Package GMDH includes a function for predicting and forecasting a univariate time series by using GMDH-type neural network, and a dataset for implementation.


Details

Package: GMDH
Type: Package
Version: 1.0
Date: 2014-11-25
License: GPL (>=2)

Cancer Data

Description

Yearly cancer death rate (per 100,000 population) of Pennsylvania between 1930 and 2000.

Usage

data(cancer)

Format

A time series with 71 observations on the following variable.

cancer  a time series for yearly cancer death rate

References

fcast

A Function to Predict and Forecast Time Series via GMDH-Type Neural Network Algorithms

Examples

data(cancer)
plot(cancer)
out = fcast(cancer, f.number = 5)
out$forecasts

Description

fcast predicts and forecasts time series via GMDH-type neural network algorithms.

Usage

fcast(data, method = "GMDH", input = 4, layer = 3, f.number = 10, tf = "all", plotit = TRUE)

Arguments

data is an univariate time series
method expects a character string to choose the desired method to forecast time series. To utilize GMDH-type neural network in forecasting, method is set to "GMDH". One should set method to "RGMDH" for forecasting via Revised GMDH-type neural network. Default is set to "GMDH"
input is the number of inputs. Defaults input = 4
layer is the number of layers. Default is set to layer = 3
f.number is the number of observations to be forecasted. Defaults f.number = 10
tf expects a character string to choose the desired transfer function to be used in forecasting. To use polynomial function, tf should be set to "polynomial". Similarly, tf should be set to "sigmoid", "RBF", "tangent" to utilize sigmoid function, radial basis function and tangent function, respectively. To use all functions simultaneously, default is set to "all"
plotit is logical which controls whether historical data with forecasts should be plotted. Defaults plotit = TRUE

Value

Returns a list containing following elements:

fitted fitted values
MSE MSE of prediction
forecasts forecasts
Note

This is the version 1.0 of this user documentation file.

Author(s)

Osman Dag, Ceylan Yozgatligil

References


Examples

```r
data = rnorm(100, 10, 1)
out = fcast(data)
out

data = rnorm(100, 10, 1)
out = fcast(data, input = 6, layer = 2, f.number = 5)
out$forecasts
out$fitted
out$MSE
```
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