Package: rego (via r-universe)

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Type Package

Title Automatic Time Series Forecasting and Missing Value Imputation

Version 1.6.1

Date 2023-08-09

Maintainer Davide Altomare <info@channelattribution.io>

Description Machine learning algorithm for predicting and imputing
time series. It can automatically set all the parameters
needed, thus in the minimal configuration it only requires the
target variable and the dependent variables if present. It can
address large problems with hundreds or thousands of dependent
variables and problems in which the number of dependent
variables is greater than the number of observations. Moreover
it can be used not only for time series but also for any other
real valued target variable. The algorithm implemented includes
a Bayesian stochastic search methodology for model selection
and a robust estimation based on bootstrapping. 'rego' is fast
because all the code is C++.

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URL <https://channelattribution.io/docs/rego>

BugReports <https://github.com/DavideAltomare/rego/issues>

LinkingTo Rcpp

Imports Rcpp

SystemRequirements GNU make

NeedsCompilation yes

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Depends R (>= 3.5.0)

Repository CRAN

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rego-package   *Automatic Time Series Forecasting and Missing Value Imputation.*

Description

rego is a machine learning algorithm for predicting and imputing time series. It can automatically set all the parameters needed, thus in the minimal configuration it only requires the target variable and the regressors if present. It can address large problems with hundreds or thousands of dependent variables and problems in which the number of dependent variables is greater than the number of observations. Moreover it can be used not only with time series but also with any other real valued target variable. The algorithm implemented includes a Bayesian stochastic search methodology for model selection and a robust estimation based on bootstrapping. rego is fast because all the code is C++.

Details

Package:	rego
Type:	Package
Version:	1.6.1
Date:	2023-08-09
License: GPL3	see file LICENCE	

Package contains a function for automatic time series forecasting and missing values imputation.

Author(s)

Davide Altomare (<info@channelattribution.io>).

References

rego Documentation

Data	*Airline Passenger Dataset*

Description

Airline Passenger Dataset

Usage

```
data(Data)
```

Format

`Data` is a data.frame with 156 rows and 1 column containing the yearly number of airline passengers

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regpred	*Automatic Time Series forecasting and Missing Value Imputation.*

Description

Automatic time series prediction and missing value imputation.

Usage

```
regpred(Data, from_lag=1, max_lag="auto", alpha=0.05, nsim=1000, flg_print=1,
        direction="->", flg_const=TRUE, flg_diff=FALSE, model=NULL)
```

Arguments

Data	data.frame containing target variable at first column and regressors if present from second to last column.
from_lag	minimum time lag to be considered in the autoregressive moving average part of the algorithm.
max_lag	maximum time lag to be considered in the autoregressive moving average part of the algorithm. If "auto" then the algorithm will set a suitable value. Set to 0 or NULL if you want to remove the autoregressive moving average part as in case of non time series data.
alpha	significance level for the confidence interval produced around predictions. If 0.05 then the algorithm will calculate a 95% confidence interval around predictions.
nsim	number of bootstrap replications used for producing confidence interval around predictions.
flg_print	if 1 some information during the evaluation will be printed.

direction	if "->" then only a forward prediction will be executed, if "<-" then only a backward prediction will be executed, if "<->" then both a forward than a backward prediction will be executed if possible. For imputing missing values is convenient to leave default "<->".
flg_const	if 1 then a constant is included into the model.
flg_diff	if 1 and no regressor is present then if the target variable exhibits a trend, it is one-step differentiated up to two times.
model	estimated models from a previous train to be used in new data prediction without retraining.

Value

An object of `class` `list` with predictions and models.

Author(s)

Davide Altomare (<info@channelattribution.io>).

References

[rego Documentation](#)

Examples

```
## Not run:

#example 1: seasonal time series

library(rego)

data(Data)

res=regpred(Data)

#print final prediction
print(res$prediction)

#example 2: high dimensional problem

Data=read.csv(url("https://channelattribution.io/csv/Data_sim_1000.csv"),header=FALSE)

res=regpred(Data, max_lag=NULL)

#print final prediction
print(res$prediction)


## End(Not run)
```

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