Package: atsar (via r-universe)

August 10, 2024

Type Package

Title Stan Routines For Univariate And Multivariate Time Series

Version 0.1.6

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Description Bundles univariate and multivariate STAN scripts for FISH 507 class.

License GPL (>=3)

Depends R (>= 3.4.0)

Imports methods, Rcpp (>= 0.12.18), RcppParallel (>= 5.0.1), rstan (>= 2.18.2), rstantools (>= 1.5.1), ggplot2, viridisLite, loo (>= 2.0.0), rlang (>= 0.3.1)

LinkingTo BH (>= 1.66.0), Rcpp (>= 0.12.18), RcppEigen (>= 0.3.3.3.0), RcppParallel (>= 5.0.1), rstan (>= 2.18.2), StanHeaders (>= 2.18.1)

Suggests testthat, knitr, rmarkdown

Encoding UTF-8

LazyData true

URL https://atsa-es.github.io/atsar/

BugReports https://github.com/atsa-es/atsar/issues

RoxygenNote 7.2.3

SystemRequirements GNU make

Biarch true

VignetteBuilder knitr

Repository https://atsa-es.r-universe.dev

RemoteUrl https://github.com/atsa-es/atsar

RemoteRef HEAD

RemoteSha a423d23978dac21fd50a51339b60600aecc4b1d4

Contents

`atsar-package` *The 'atsar' package.*

Description

A DESCRIPTION OF THE PACKAGE

References

Stan Development Team (2020). RStan: the R interface to Stan. R package version 2.21.2. https://mc-stan.org

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`fit_stan` *fit_stan is the primary function which calls pre-written stan scripts for time series data.*

Description

fit_stan is the primary function which calls pre-written stan scripts for time series data.

Usage

```
fit_stan(
  y,
  x = NA,
  model_name = NA,
  est_drift = FALSE,
  est_mean = FALSE,
  P = 1,
  Q = 1,
  mcmc_list = list(n_mcmc = 1000, n_burn = 500, n_chain = 3, n_thin = 1),
  family = "gaussian",
  est_nu = FALSE,
 marss = list(states = NULL, obsVariances = NULL, proVariances = NULL, trends = NULL),
  map_estimation = FALSE,
  hessian = FALSE,
  ...
)
```

Arguments

y	The response variable (numeric)
x	The predictors, either a vector or matrix
model_name	The specific name of the model to be fitted. Currently supported are 'regression', 'ar', 'rw', 'ma', 'ss_ar' (state space univariate AR), or 'ss_rw' (state space univariate random walk).
est_drift	Whether or not to estimate a drift parameter (default = FALSE). Only applicable to the rw and ar models.
est_mean	Whether to estimate a mean or not (for state space autoregressive model only)
P	The order of the ar model, with minimum value = 1 (default).
Q	The order of the ma model, with minimum value = 1 (default).
mcmc_list	A list of MCMC control parameters. These include the number of 'iterations' (default = 1000), burn in or warmup (default = 500), chains (default = 3), and thinning (default = 1)
family	A named distribution for the observation model, defaults to gaussian
est_nu	Boolean, whether to model process deviations as Student-t or not (default).
marss	A named list containing the following elements for specifying marss models: (states=NULL, obsVariances=NULL, proVariances=NULL, trends=NULL
map_estimation	Whether to do maximum a posteriori estimation via [rstan::optimizing()] (defualts to FALSE)
hessian	Whether to return hessian if map_estimation is TRUE via [rstan::optimizing()]
...	Any other arguments passed to [rstan::sampling()].

Value

an object of class 'rstan'

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