Package ‘simpleMH’

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Title Simple Metropolis-Hastings MCMC Algorithm

Version 0.1.1

Description A very bare-bones interface to use the Metropolis-Hastings Monte Carlo Markov Chain algorithm. It is suitable for teaching and testing purposes.

Imports mvtnorm

Suggests coda, mockery, testthat (>= 3.0.0), knitr, rmarkdown

License GPL-3

Config/testthat/edition 3

Encoding UTF-8

Language en-GB

RoxygenNote 7.1.1.9001

VignetteBuilder knitr

URL `https://github.com/Bisaloo/simpleMH`

BugReports `https://github.com/Bisaloo/simpleMH/issues`

NeedsCompilation no

Author Hugo Gruson [aut, cre, cph] (<`https://orcid.org/0000-0002-4094-1476`>)

Maintainer Hugo Gruson <`hugo.gruson+R@normalesup.org`>

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R topics documented:

simpleMH — *Simple Metropolis-Hastings MCMC*

Description

Simple Metropolis-Hastings MCMC

Usage

```
simpleMH(f, inits, theta.cov, max.iter, coda = FALSE, ...)
```

Arguments

`f`	function that returns a single scalar value proportional to the log probability density to sample from.
`inits`	numeric vector with the initial values for the parameters to estimate
`theta.cov`	covariance matrix of the parameters to estimate.
`max.iter`	maximum number of function evaluations
`coda`	logical. Should the samples be returned as coda::mcmc object? (defaults to `FALSE`)
`...`	further arguments passed to `f`

Value

- if coda = `FALSE` a list with:
  - *samples*: A two dimensional array of samples with dimensions `generation` x `parameter`
  - *log.p*: A numeric vector with the log density evaluate at each generation.
- if coda = `TRUE` a list with:
  - *samples*: A object of class coda::mcmc containing all samples.
  - *log.p*: A numeric vector with the log density evaluate at each generation.

Examples

```
p.log <- function(x) {
B <- 0.03
return(-x[1]^2/200 - 1/2*(x[2]+B*x[1]^2-100*B)^2)
}

simpleMH(p.log, inits=c(0, 0), theta.cov = diag(2), max.iter=3000)
```

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