Package: linconGaussR (via r-universe)

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Type Package

Title Sampling Multivariate Normal Distribution under Linear Constraints

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Description Sample truncated multivariate Normal distribution following Gessner, A., Kanjilal, O., & Hennig, P. (2019). Integrals over Gaussians under Linear Domain Constraints. 108. <arxiv:1910.09328>.

License GPL-3

Imports Rcpp (>= 1.0.7), MASS

LinkingTo Rcpp, RcppArmadillo

URL `https://github.com/YunyiShen/linconGaussR`

BugReports `https://github.com/YunyiShen/linconGaussR/issues`

RoxygenNote 7.1.1

Repository https://yunyishen.r-universe.dev

RemoteUrl https://github.com/yunyishen/lincongaussr

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Contents

`linconGauss` *Sample Gaussian distribution with linear constraints Taking truncated sample of Gaussian distribution over a linear constraint domain.*

Description

Sample Gaussian distribution with linear constraints Taking truncated sample of Gaussian distribution over a linear constraint domain.

Usage

```
linconGauss(
  n,
  A,
  b,
  Sigma,
  mu,
  x_init = NULL,
  intersection = TRUE,
  n_retry_init = 1000,
  nskp = 5
)
```

Arguments

`n`	number of samples to take
`A`	a matrix with M by D dimensions, the linear constraints, such that Ax+b>=0
`b`	the offset of the linear constraints with dimension M such that Ax+b>=0
`Sigma`	covariance matrix of the Gaussian
`mu`	mean vector of the Gaussian
`x_init`	the sample to start with, if NULL, a sample will be drawn using rejection method
`intersection`	bool whether sample from the intersection or the union of the linear constraints, default true, sample from the intersection
`n_retry_init`	how many times to try finding a initial value
`nskp`	how many sample to skip during the sampling routine

Value

a matrix with truncated sample, row as samples

Examples

```
my_sample <- linconGauss(100, diag(2),c(0,0),diag(2),c(0,0))
MASS_sample <- MASS::mvrnorm(1000,c(0,0),diag(2))
plot(MASS_sample)
points(my_sample,col = "red")
abline(h=0)
abline(v=0)
```

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