Package ‘l1ball’

June 13, 2020

Type Package

Title l1-ball Prior For Sparse Regression

Version 0.1.0

Author Maoran Xu and Leo L. Duan

Maintainer Maoran Xu <maoranxu@ufl.edu>

Description This package provides function for the l1-ball prior on high-
dimensional regression. The main function, l1ball, yields posterior samples for linear regression.

License GPL (>= 2)

Depends R (>= 3.1.0),EnvStats, extraDistr

Encoding UTF-8

LazyData true

RoxygenNote 7.1.0

Import extraDistr, EnvStats

R topics documented:

`l1ball` *l1-ball prior for sparse regression*

Description

This package provides function for the l1-ball prior on high-dimensional regression. The main function, l1ball, yields posterior samples for linear regression.

Arguments

`y`	A data vector, n by 1
`X`	A design matrix, n by p
`b_w`	The parameter in $Beta(1, b_w)$ for w
`steps`	Number of steps to run the Markov Chain Monte Carlo
`burn-ins`	Number of burn-ins

Value

trace returns a list of two component: trace_slab and trace_theta, containing all the posterior samples after burn-in.

Examples

```
n = 200
p = 500
X <- matrix(rnorm(n*p),n,p)
d = 5
w0 <- c(rep(0, p-d), rnorm(d)*0.1+1)

y = X
trace <- l1ball(y,X,b_w = 1.5,2000,burnin = 2000)

plot(colMeans(trace$trace_theta))
```

Index