Package: PPSFS (via r-universe)

October 5, 2026

Type Package

Title Partial Profile Score Feature Selection in High-Dimensional Generalized Linear Interaction Models

Version 0.1.3

Maintainer Zengchao Xu <zengc.xu@aliyun.com>

Description This is an implementation of the partial profile score feature selection (PPSFS) approach to generalized linear (interaction) models. The PPSFS is highly scalable even for ultra-high-dimensional feature space. See the paper by Xu, Luo and Chen (2022) <doi:10.4310/21-SII706>.

URL https://github.com/paradoxical-rhapsody/PPSFS

BugReports https://github.com/paradoxical-rhapsody/PPSFS/issues

Imports Rcpp, brglm2, stats

LinkingTo Rcpp, RcppArmadillo

License GPL-3

Encoding UTF-8

Language en-US

RoxygenNote 7.3.3

NeedsCompilation yes

Author Zengchao Xu [aut, cre], Shan Luo [aut], Zehua Chen [aut]

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

Date/Publication 2026-04-11 10:58:04 UTC

RemoteUrl https://github.com/cran/PPSFS

RemoteRef HEAD

RemoteSha 73dba0fea52a67c7b83ccbb4acdd182f508e0362

Contents

PPS-method 2
ppsfs.fit 3

Index **5**

PPS-method *Partial Profile Score Feature Selection for GLMs*

Description

ppsfs: PPSFS for **main-effects**.

ppsfsi: PPSFS for **interaction effects**.

Usage

```
ppsfs(
  x,
  y,
  family,
  keep = NULL,
  I0 = NULL,
  ...,
  ebicFlag = 1,
  maxK = min(NROW(x) - 1, NCOL(x) + length(I0)),
  verbose = FALSE
)

ppsfsi(
  x,
  y,
  family,
  keep = NULL,
  ...,
  ebicFlag = 1,
  maxK = min(NROW(x) - 1, choose(NCOL(x), 2)),
  verbose = FALSE
)
```

Arguments

x	Matrix.
y	Vector.
family	See glm and family.
keep	Initial set of features that are included in model fitting.
I0	Index set of interaction effects to be identified.
...	Additional parameters for glm.fit.
ebicFlag	The procedure stops when the EBIC increases after ebicFlag times.
maxK	Maximum number of identified features.
verbose	Print the procedure path?

Details

That `ppsfs(x, y, family="gaussian")` is an implementation to *sequential lasso* method proposed by Luo and Chen(2014) doi:10.1080/01621459.2013.877275.

Value

Index set of identified features.

References

Z. Xu, S. Luo and Z. Chen (2022). Partial profile score feature selection in high-dimensional generalized linear interaction models. Statistics and Its Interface. doi:10.4310/21-SII706

Examples

```
## ****************************************************
## Identify main-effect features
## ****************************************************
set.seed(2022)
n <- 300
p <- 1000
x <- matrix(rnorm(n*p), n)
eta <- drop( x[, 1:3] %*% runif(3, 1.0, 1.5) )
y <- eta + rnorm(n, sd=sd(eta)/5)
print( A <- ppsfs(x, y, 'gaussian', verbose=TRUE) )

## ****************************************************
## Identify interaction effects
## ****************************************************
set.seed(2022)
n <- 300
p <- 150
x <- matrix(rnorm(n*p), n)
eta <- drop( cbind(x[, 1:3], x[, 4:6]*x[, 7:9]) %*% runif(6, 1.0, 1.5) )
y <- eta + rnorm(n, sd=sd(eta)/5)
print( group <- ppsfsi(x, y, 'gaussian', verbose=TRUE) )
print( A <- ppsfs(x, y, "gaussian", I0=group, verbose=TRUE) )

print( A <- ppsfs(x, y, "gaussian", keep=c(1, "5:8"),
                  I0=group, verbose=TRUE) )
```

`ppsfs.fit` *Partial Profile Score Feature Selection for GLMs*

Description

This is a simplified but more stable implementation for main-effects selection compared to ppsfs. It removes the standaridization, but adds the weights in the partial profile score.

Usage

```
ppsfs.fit(
  x,
  y,
  family,
  fitFun = glm.fit,
  ...,
  keep = NULL,
  maxK = NULL,
  verbose = FALSE
)
```

Arguments

x	Matrix.
y	Vector.
family	See glm and family.
fitFun	Fitting function, by default glm.fit.
...	Additional parameters for glm.fit.
keep	Initial index set of features that are included in model fitting.
maxK	Maximum number of identified features.
verbose	Print the feature path?

Details

That `ppsfs(x, y, family="gaussian")` is an implementation to sequential lasso method proposed by Luo and Chen(2014) doi:10.1080/01621459.2013.877275.

References

Z. Xu, S. Luo and Z. Chen (2022). Partial profile score feature selection in high-dimensional generalized linear interaction models. Statistics and Its Interface. doi:10.4310/21-SII706

Examples

```
set.seed(2025)
n <- 300
p <- 1000
x <- matrix(rnorm(n*p), n)
eta <- drop( x[, 1:3] %*% runif(3, 1.0, 1.5) )
y <- eta + rnorm(n, sd=sd(eta)/5)
print( A <- ppsfs.fit(x, y, 'gaussian', verbose=TRUE) )
```

Index

family, *2*, *4*

glm, *2*, *4*
glm.fit, *2*, *4*

PPS-method, 2
ppsfs, *3*
ppsfs *(*PPS-method*)*, 2
ppsfs.fit, 3
ppsfsi *(*PPS-method*)*, 2