

Package: CaPri (via r-universe)

October 20, 2026

Title Bayesian Mendelian Randomization with Potentially Pleiotropic Instruments

Version 0.0.0.9000

Description Bayesian Mendelian randomization using GWAS summary statistics that jointly estimates the causal effect of an exposure on an outcome and the direct pleiotropic effects of genetic instruments, using variational inference.

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URL <https://github.com/OuRen0104/CaPri>

BugReports <https://github.com/OuRen0104/CaPri/issues>

Imports graphics, utils

Depends R (>= 3.5)

LazyData true

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Repository <https://mrcieu.r-universe.dev>

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`coef.capri`
Extract coefficients from a CaPri fit

Description

Extract coefficients from a CaPri fit

Usage

```
## S3 method for class 'capri'
coef(object, ...)
```

Arguments

`object` An object of class `capri`.
`...` Additional arguments.

Value

A named numeric vector.

`fit_capri_sumstats`
Fit CaPri using summary statistics

Description

Fits the CaPri Mendelian randomization model using SNP-level summary statistics. This summary-statistics version assumes independent variants, corresponding to an identity LD matrix by default.

Usage

```
fit_capri_sumstats(
  muY,
  betaX,
  n,
  allele_mode = c("as_is", "minor"),
  eaf = NULL,
  pi_delta = 0.01,
  pi_c = 0.5,
  tau_gamma = 1,
  tau_beta = 0,
  sigma_Y = 1,
  max_iter = 2000,
  eps_theta = 1e-06,
  patience = 5,
  verbose = 1
)
```

Arguments

muY	Numeric vector of SNP-outcome summary association estimates.
betaX	Numeric vector of SNP-exposure summary association estimates.
n	Sample size used for the summary statistics.
allele_mode	Character string specifying allele orientation. If "as_is", summary statistics are used without modification. If "minor", SNP effects are flipped so that effects correspond to the minor allele direction.
eaf	Numeric vector of effect allele frequencies. Required when allele_mode="minor".
pi_delta	Prior probability of a causal effect.
pi_c	Prior probability that an instrument is pleiotropic.
tau_gamma	Prior precision for the causal effect.
tau_beta	Prior precision for the pleiotropic effect.
sigma_Y	Residual standard deviation of the outcome model.
max_iter	Maximum number of variational inference iterations.
eps_theta	Parameter convergence threshold.
patience	Number of consecutive stable iterations required for convergence.
verbose	Whether to print progress during variational inference.

Value

An object of class `capri`.

plot.capri	<i>Plot a CaPri fit</i>
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Description

Plot a CaPri fit

Usage

```
## S3 method for class 'capri'
plot(x, ...)
```

Arguments

x	An object of class <code>capri</code> .
...	Additional arguments passed to <code>graphics::plot</code> .

Value

Invisibly returns x.

print.capri	<i>Print a CaPri fit</i>
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Description

Print a CaPri fit

Usage

```
## S3 method for class 'capri'  
print(x, ...)
```

Arguments

x	An object of class capri.
...	Additional arguments.

Value

Invisibly returns x.

summary.capri	<i>Summarize a CaPri fit</i>
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Description

Summarize a CaPri fit

Usage

```
## S3 method for class 'capri'  
summary(object, ...)
```

Arguments

object	An object of class capri.
...	Additional arguments.

Value

Invisibly returns object.

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