Package 'cisp'

May 8, 2026

Title A Correlation Indicator Based on Spatial Patterns

Version 0.2.0

Description Utilizes spatial association marginal contributions derived from spatial stratified heterogeneity to capture the degree of correlation between spatial patterns.

License GPL-3

Encoding UTF-8

RoxygenNote 7.3.3

URL https://stscl.github.io/cisp/, https://github.com/stscl/cisp

BugReports https://github.com/stscl/cisp/issues

Depends R (>= 4.1.0)

Imports dplyr, forcats, gdverse (>= 1.5), ggplot2, ggraph, igraph, magrittr, parallel, purrr, sdsfun (>= 0.7.0), sf, tibble, tidyr

Suggests knitr, rmarkdown, spEDM

VignetteBuilder knitr

NeedsCompilation no

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Repository CRAN

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Contents

spc *spatial pattern correlation*

Description

spatial pattern correlation

Usage

```
spc(
  data,
  overlay = "and",
  discnum = 3:8,
  discmethod = c("sd", "equal", "geometric", "quantile", "natural"),
  cores = 1
)
```

Arguments

data	A data.frame, tibble or sf object of observation data.
overlay	(optional) Spatial overlay method. One of and, or, intersection. Default is and.
discnum	(optional) A vector of number of classes for discretization. Default is 3:8.
discmethod	(optional) A vector of methods for discretization, default is using c("sd","equal","geometric","quan by invoking sdsfun.
cores	(optional) Positive integer (default is 1). When cores are greater than 1, use parallel computing.

Value

A list.

cor_tbl A tibble with power of spatial pattern correlation

cor_mat A matrix with power of spatial pattern correlation

Examples

```
sim1 = sf::st_as_sf(gdverse::sim,coords = c('lo','la'))
sim1

g = spc(sim1, discnum = 3:6, cores = 1)
g
plot(g,"matrix")
```

ssh_marginalcontri *spatial association marginal contributions derived from spatial stratified heterogeneity*

Description

spatial association marginal contributions derived from spatial stratified heterogeneity

Usage

```
ssh_marginalcontri(formula, data, overlay = "and", cores = 1)
```

Arguments

formula	A formula of ISP model.
data	A data.frame, tibble or sf object of observation data.
overlay	(optional) Spatial overlay method. One of and, or, intersection. Default is and.
cores	(optional) Positive integer (default is 1). When cores are greater than 1, use parallel computing.

Value

A list.

pd power of determinants

spd shap power of determinants

determination determination of the optimal interaction of variables

Examples

```
NTDs1 = sf::st_as_sf(gdverse::NTDs, coords = c('X','Y'))
g = ssh_marginalcontri(incidence ~ ., data = NTDs1, cores = 1)
g
plot(g)
```

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