

Package ‘cisp’

November 21, 2024

Title A Correlation Indicator Based on Spatial Patterns

Version 0.1.0

Description Use the 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 7.3.2

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 (>= 1.3), ggplot2, ggraph, igraph, magrittr, parallel, purrr, RColorBrewer, sdsfun (>= 0.4.3), sf, tibble, tidyr

Suggests knitr, rmarkdown

VignetteBuilder knitr

NeedsCompilation no

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Repository CRAN

Date/Publication 2024-11-21 08:00:06 UTC

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 spc

spatial pattern correlation

Description

spatial pattern correlation

Usage

```

spc(
  data,
  overlay = "and",
  discnum = 3:8,
  minsize = 1,
  strategy = 2L,
  increase_rate = 0.05,
  cores = 1
)

```

Arguments

<code>data</code>	A <code>data.frame</code> , <code>tibble</code> or <code>sf</code> object of observation data.
<code>overlay</code>	(optional) Spatial overlay method. One of <code>and</code> , <code>or</code> , <code>intersection</code> . Default is <code>and</code> .
<code>discnum</code>	A numeric vector of discretized classes of columns that need to be discretized. Default all <code>discvar</code> use <code>3:8</code> .
<code>minsize</code>	(optional) The min size of each discretization group. Default all use <code>1</code> .
<code>strategy</code>	(optional) Optimal discretization strategy. When <code>strategy</code> is <code>1L</code> , choose the highest q-statistics to determinate optimal spatial data discretization parameters. When <code>strategy</code> is <code>2L</code> , The optimal discrete parameters of spatial data are selected by combining LOESS model.
<code>increase_rate</code>	(optional) The critical increase rate of the number of discretization. Default is 5%.
<code>cores</code>	(optional) Positive integer (default is 1). When <code>cores</code> are greater than 1, use multi-core parallel computing.

Value

A list.

`correlation_tbl` A tibble with power of spatial pattern correlation

`correlation_mat` A matrix with power of spatial pattern correlation

Examples

```
## Not run:
## The following code needs to configure the Python environment to run:
sim1 = sf::st_as_sf(gdverse::sim, coords = c('lo', 'la'))
g = spc(sim1, discnum = 3:6, cores = 1)
g

## End(Not run)
```

ssh_marginalcontri	<i>spatial association marginal contributions derived from spatial stratified heterogeneity</i>
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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 multi-core parallel computing.

Value

A list.

pd robust 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
```

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