

# Package: cisp (via r-universe)

November 21, 2024

**Title** A Correlation Indicator Based on Spatial Patterns

**Version** 0.2.0

**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

**Roxygen** list(markdown = TRUE)

**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

**Config/pak/sysreqs** libfontconfig1-dev libfreetype6-dev libgdal-dev gdal-bin libgeos-dev libglpk-dev make libicu-dev libpng-dev libxml2-dev libssl-dev libproj-dev python3 libsqlite3-dev libudunits2-dev

**Repository** <https://stscl.r-universe.dev>

**RemoteUrl** <https://github.com/stscl/cisp>

**RemoteRef** HEAD

**RemoteSha** 7a7f71305cbc23f1256ba880cbce13c0e1f776db

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spc	<i>spatial pattern correlation</i>
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**Description**

spatial pattern correlation

**Usage**

```
spc(
  data,
  overlay = "and",
  discnum = 3:8,
  minsize = 1,
  strategy = 2L,
  increase_rate = 0.05,
  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	A numeric vector of discretized classes of columns that need to be discretized. Default all discvar use 3:8.
minsize	(optional) The min size of each discretization group. Default all use 1.
strategy	(optional) Optimal discretization strategy. When strategy is 1L, choose the highest q-statistics to determinate optimal spatial data discretization parameters. When strategy is 2L, The optimal discrete parameters of spatial data are selected by combining LOESS model.
increase_rate	(optional) The critical increase rate of the number of discretization. Default is 5%.
cores	(optional) Positive integer (default is 1). When cores 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)
```

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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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