Package 'itmsa'

May 8, 2026

Title Information-Theoretic Measures for Spatial Association

Version 0.1.0

Description Leveraging information-theoretic measures like mutual information and v-measure to quantify spatial associations between patterns (Nowosad and Stepinski (2018) <doi:10.1080/13658816.2018.1511794>; Bai, H. et al. (2023) <doi:10.1080/24694452.2023.2223700>).

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Encoding UTF-8

RoxygenNote 7.3.2

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

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

Depends R (>= 4.1.0)

LinkingTo Rcpp, RcppThread

Imports dplyr, purrr, sdsfun (>= 0.6.0), sf

Suggests knitr, Rcpp, RcppThread, readr, rmarkdown, tibble

VignetteBuilder knitr

NeedsCompilation yes

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Repository CRAN

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itm *Information-Theoretic Measures for Spatial Association*

Description

Information-Theoretic Measures for Spatial Association

Usage

```
itm(
  formula,
  data,
  method = c("vm", "icm"),
  beta = 1,
  unit = c("e", "2", "10"),
  seed = 42,
  permutation_number = 999
)
```

Arguments

formula	A formula.
data	A data.frame, tibble or sf object of observation data.
method	(optional) whether vm(default) or icm.
beta	(optional) The β value used fo vm measure, default is 1.
unit	(optional) Logarithm base, default is e.
seed	(optional) Random number seed, default is 42.
permutation_number	(optional) Number of Random Permutations, default is 999.

Value

A tibble.

Examples

```
sim = readr::read_csv(system.file('extdata/sim.csv',package = 'itmsa'))

# Information-theoretical V-measure
itm(z1 ~ z2, data = sim, method = 'vm')
# Information Consistency-Based Measures
itm(z1 ~ z2, data = sim, method = 'icm')
```

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