Package: outlying (via r-universe)

October 15, 2026

Title Outliers Detection

Version 0.0.2

Description Provides functions for detecting outliers in datasets using statistical methods. The package supports identification of anomalous observations in numerical data and is intended for use in data cleaning, exploratory data analysis, and preprocessing workflows.

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URL https://github.com/P10911004-NPUST/outlying

BugReports https://github.com/P10911004-NPUST/outlying/issues

Encoding UTF-8

Roxygen list(markdown = TRUE)

RoxygenNote 7.3.3

Depends R (>= 3.5)

LazyData true

Repository https://p10911004-npust.r-universe.dev

Date/Publication 2026-10-15 07:23:23 UTC

RemoteUrl https://github.com/p10911004-npust/outlying

RemoteRef HEAD

RemoteSha e67f18eb1966df11ff64e7567b00e7f0a9458227

Contents

Grubbs_test 2

Index **4**

`Grubbs_test` *Grubbs' test*

Description

Iteratively search for all possible outliers in a numeric vector. The default method is a modification version of Grubbs' test, which is slightly more sensitive to "far-points" compare to the original one. Please change the `sensitivity` to 1 if the original test is preferred.

Usage

```
Grubbs_test(
  x,
  alpha = 0.05,
  min_n = 7L,
  iteration = -1L,
  max_out = 0.2,
  use_median = FALSE,
  sensitivity = 2L,
  verbose = FALSE
)
```

Arguments

`x`	A numeric vector.
`alpha`	Default: 0.05 (two-tailed, thus 0.025 for each side).
`min_n`	A positive integer (default: 7). The minimum observations required for the test.
`iteration`	How many iterations of the test should be proceeded (default: -1; means unlimited)? Each iteration will only recognize one outlier. For example, `iteration = 3` means the test will find no more than 3 outliers.
`max_out`	The maximum proportion (ranged from 0 to 1) of outliers to be detected in the dataset (default: 0.2, which means the data contain no more than 20% of outliers data points). If too many outliers, simply discarding them using this approach might be inappropriate.
`use_median`	Use the median or the mean value as the center (default: FALSE).
`sensitivity`	An integer value range from 1 to 3 (default: 3). The higher the value, the more sensitive of the test. Value of 1 is essentially the original Grubbs' test, which is probably too conservative. Value of 2 recalculates the mean after discarding the outlier for each iteration. Value of 3 is same with 2, but the standard deviation is also recalculated.
`verbose`	Should the output includes statistics result (default: FALSE)?

Value

By default (verbose = FALSE), return a logical named vector indicating the outlying elements. If verbose = TRUE, return a list which contains statistic values.

References

Grubbs, F. E. (1969). Procedures for Detecting Outlying Observations in Samples. Technometrics, 11(1), 1–21. https://doi.org/10.1080/00401706.1969.10490657

Examples

```
set.seed(1)
#--------------------------------------------------------------------------
Grubbs_test(c(0, 0, 7, 0, 0, 1, 0))
#>     0     0     7     0     0     1     0
#> FALSE FALSE  TRUE FALSE FALSE  TRUE FALSE
#--------------------------------------------------------------------------
x <- c(round(rnorm(3, 0, 1), 2), -5, 3)
Grubbs_test(x, min_n = 5, max_out = 0.4)
#> -0.63  0.18 -0.84    -5     3
#> FALSE FALSE FALSE  TRUE  TRUE
#--------------------------------------------------------------------------
x <- round(c(rnorm(10, 0, 1), 5))
Grubbs_test(x)
#>     2     0    -1     0     1     1     0     2     0    -1     5
#> FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE  TRUE
```

Index

Grubbs_test, 2