Package 'RMSD'

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Type Package

Title Refined Modified Stahel-Donoho Estimators for Outlier Detection

Version 0.1.1

Suggests testthat (>= 3.0.0)

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Description A function for multivariate outlier detection named Modified Stahel-Donoho (MSD) estimators is contained. The function is for elliptically distributed datasets and recognizes outliers based on Mahalanobis distance.
The function is called the single core version in Wada & Tsubaki (2013) <doi:10.1109/CLOUDCOM-ASIA.2013.86> and evaluated with other methods in Wada, Kawano & Tsubaki (2020) <doi:10.17713/ajs.v49i2.872>.

License GPL (>= 3)

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NeedsCompilation no

Repository CRAN

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Contents

RMSD *Modified Stahel-Donoho Estimators (Single core version)*

Description

This function is for multivariate outlier detection. Ver.1.6 2009/07/14 Published at http://www.stat.go.jp/training/2kenkyu/pdf (in Japanese) Ver.1.7 2018/10/19 Modify gso function to stop warning messages Ver.2 2021/09/10 Added the outlier detection step

Usage

```
RMSD(inp, nb = 0, sd = 0, pt = 0.999)
```

Arguments

inp	input data (a numeric matrix)
nb	number of basis
sd	seed (for reproducibility)
pt	threshold for outlier detection (probability)

Value

a list of the following information

- u final mean vector
- V final covariance matrix
- wt final weights
- mah squared Mahalanobis distance of each observation
- FF F test statistics
- cf threshold to detect outliers (percentile point)
- ot outlier flag (1:normal observation, 2:outlier)

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