Package ‘RChest’

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Type Package

Title Locating Distributional Changes in Highly Dependent Time Series

Version 1.0.3

Maintainer Lukas Zierahn <lukas@kappa-mm.de>

Description Provides algorithms to locate multiple distributional change-points in piecewise stationary time series. The algorithms are provably consistent, even in the presence of long-range dependencies. Knowledge of the number of change-points is not required. The code is written in Go and interfaced with R.

License GPL

URL https://github.com/azalk/GoChest

BugReports https://github.com/azalk/GoChest/issues

Imports Rdpack, reticulate

Suggests testthat

RdMacros Rdpack

Encoding UTF-8

LazyData true

RoxygenNote 7.1.1

NeedsCompilation no

Author Lukas Zierahn [cre, aut],
Azadeh Khaleghi [aut]

Repository CRAN

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Contents

find_changepoints *find_changepoints*

Description

Returns the position of changepoints in the sequence. NOTE: PyChest needs to be installed first by calling 'install_PyChest'.

Usage

```
find_changepoints(sample, minimum_distance, process_count)
```

Arguments

`sample`	A vector of floats corresponding to the piecewise stationary sample where the retrospective changes are to be sought
`minimum_distance`	A real number between 0 and 1 corresponding to a lower-bound on the minimum normalized length of the stationary segments (as percentage of total sample length)
`process_count`	The different number of distinct stationary processes present.

Value

The list of changepoints in increasing size

References

Khaleghi A, Ryabko D (2014). "Asymptotically consistent estimation of the number of change points in highly dependent time series." In *International Conference on Machine Learning*, 539–547.

Khaleghi A, Ryabko D (2012). "Locating changes in highly dependent data with unknown number of change points." In *Advances in Neural Information Processing Systems*, 3086–3094.

install_PyChest *install_PyChest*

Description

Initializes the package and installs/updates PyChest into the local reticulate-Python environment

Usage

```
install_PyChest()
```

Value

No return value, called to install the PyChest Package

`list_estimator` *list_estimator*

Description

Returns the position of changepoints in the sequence. NOTE: PyChest needs to be installed first by calling 'install_PyChest'.

Usage

```
list_estimator(sample, minimum_distance)
```

Arguments

`sample` A vector of floats corresponding to the piecewise stationary sample where the retrospective changes are to be sought

`minimum_distance` A real number between 0 and 1 corresponding to a lower-bound on the minimum normalized length of the stationary segments (as percentage of total sample length)

Value

The list of changepoints in order of score

References

Khaleghi A, Ryabko D (2012). "Locating changes in highly dependent data with unknown number of change points." In *Advances in Neural Information Processing Systems*, 3086–3094.

Index