

Package: RChest (via r-universe)

August 31, 2024

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

Repository <https://azalk.r-universe.dev>

RemoteUrl <https://github.com/azalk/gochest>

RemoteRef HEAD

RemoteSha afe9aaf7a877f627b77b79a262c1b44ed647fea1

Contents

find_changepoints	2
install_PyChest	2
list_estimator	3

Index	4
--------------	----------

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

`find_changepoints`, [2](#)

`install_PyChest`, [2](#)

`list_estimator`, [3](#)