Package 'scperturbR'

Type Package

Title E-Statistics for Seurat Objects

Version 0.1.0

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Description R version of 'scperturb' tool for single-cell perturbation
analysis. Contains wrappers for performing E-statistics for Seurat objects.
More details on the method can be found in Peidli et al. (2023)
<doi:10.1101/2022.08.20.504663> and in Székely and Rizzo (2004).

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URL https://github.com/sanderlab/scPerturb/tree/master/package_r

BugReports https://github.com/sanderlab/scPerturb/issues

Depends R (>= 3.5.0)

Imports Seurat, dplyr, rdist, energy, stats

Encoding UTF-8

Language en-US

RoxygenNote 7.2.3

Suggests testthat (>= 3.0.0)

Config/testthat/edition 3

NeedsCompilation no

Repository CRAN

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R topics documented:

edist	*edist*

Description

Computes pairwise E-distances on a Seurat object. Computes E-distance between all groups in a Seurat object in space given by reduction.

Usage

```
edist(
  seurat_object,
  groupby = "perturbation",
  reduction = "pca",
  sample_correction = FALSE,
  verbose = TRUE
)
```

Arguments

seurat_object	An object of class Seurat.
groupby	An object of class character. Points to the column in the Seurat object's meta data that contains the group labels.
reduction	An object of class character. The reduction / embedding in seurat_object that is used to compute the E-distance in.
sample_correction	
	An object of class logical. If TRUE, the E-distances are corrected for sample size. Will make it not a proper distance, leads to negative values.
verbose	An object of class logical. If TRUE, prints messages. Default is TRUE.

Value

Returns an object of class data.frame. For each group contains the E-test p-value and the E-distance to control group.

Examples

```
# Add some code illustrating how to use the function
```

```
etest                           etest
```

Description

Performs E-testing on a Seurat object. Computes E-test statistics for each group in a Seurat object, using the E-distance in space given by reduction to the group defined by control.

Usage

```
etest(
  seurat_object,
  groupby = "perturbation",
  control = "control",
  reduction = "pca",
  verbose = TRUE,
  permutations = 1000
)
```

Arguments

seurat_object	An object of class Seurat.
groupby	An object of class character. Points to the column in the Seurat object's meta data that contains the group labels.
control	An object of class character. The group that is used as the control.
reduction	An object of class character. The reduction / embedding in seurat_object that is used to compute the E-distance in.
verbose	An object of class logical. If TRUE, prints messages. Default is TRUE.
permutations	An object of class integer. The number of permutations used to compute the p-value. Default is 1000.

Value

Returns an object of class data.frame. For each group contains the E-test p-value and the E-distance to control group.

Examples

```
# Add some code illustrating how to use the function
```

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