Package ‘iSEEhex’

May 29, 2024

Title iSEE extension for summarising data points in hexagonal bins
Version 1.6.0
Date 2022-06-16

Description This package provides panels summarising data points in hexagonal bins for `iSEE`. It is part of `iSEEu`, the iSEE universe of panels that extend the `iSEE` package.

License Artistic-2.0

URL https://github.com/iSEE/iSEEhex

BugReports https://support.bioconductor.org/t/iSEEhex

biocViews Software, Infrastructure

Encoding UTF-8

Roxygen list(markdown = TRUE)

RoxygenNote 7.2.0

Depends SummarizedExperiment, iSEE

Imports ggplot2, hexbin, methods, shiny

Suggests BiocStyle, covr, knitr, RefManageR, rmarkdown, sessioninfo, testthat (>= 3.0.0), scRNAseq, scater

Config/testthat/edition 3

VignetteBuilder knitr
git_url https://git.bioconductor.org/packages/iSEEhex
git_branch RELEASE_3_19
git_last_commit 63a6a0c
git_last_commit_date 2024-04-30

Repository Bioconductor 3.19

Date/Publication 2024-05-29

Author Kevin Rue-Albrecht [aut, cre] (https://orcid.org/0000-0003-3899-3872), Charlotte Soneson [aut] (https://orcid.org/0000-0003-3833-2169), Federico Marini [aut] (https://orcid.org/0000-0003-3252-7758), Aaron Lun [aut] (https://orcid.org/0000-0002-3564-4813)

Maintainer Kevin Rue-Albrecht <kevinrue67@gmail.com>


Contents

iSEEhex-pkg .......................................................... 2
ReducedDimensionHexPlot-class .................................. 2

Index 5

iSEEhex-pkg iSEEhex: iSEE extension for summarising data points in hexagonal bins

Description

iSEEhex is a package that provides panels summarising data points in hexagonal bins for iSEE.

Author(s)

Kevin Rue-Albrecht <kevin.rue-albrecht@kennedy.ox.ac.uk>
Charlotte Soneson <charlottesoneson@gmail.com>
Federico Marini <marinif@uni-mainz.de>
Aaron Lun <infinite.monkeys.with.keyboards@gmail.com>

See Also

Useful links:
  • https://github.com/iSEE/iSEEhex
  • Report bugs at https://support.bioconductor.org/t/iSEEhex

ReducedDimensionHexPlot-class

The ReducedDimensionHexPlot class

Description

The ReducedDimensionHexPlot is a ReducedDimensionPlot subclass that is dedicated to creating a reduced dimension plot summarising data points in hexagonal bins.

Slot overview

The following slots control the parameters used in the visualization:

  • BinResolution, a numeric positive scalar specifying the number of hexagonal bins in both vertical and horizontal directions. Defaults to 100.

In addition, this class inherits all slots from its parent ReducedDimensionPlot, ColumnDotPlot, DotPlot and Panel classes.
**ReducedDimensionHexPlot-class**

**Constructor**
ReducedDimensionHexPlot(...) creates an instance of a ReducedDimensionHexPlot class, where any slot and its value can be passed to ... as a named argument.

**Supported methods**
In the following code snippets, x is an instance of a ReducedDimensionHexPlot class. Refer to the documentation for each method for more details on the remaining arguments.

For defining the interface:
- `.panelColor(x)` will return the specified default color for this panel class.
- `.fullName(x)` will return "Hexagonal reduced dimension plot".
- `.hideInterface(x, field)` will return TRUE for field="Downsample" as downsampling is not applicable to this panel that summarizes all data points in each hexagonal bin; otherwise this function will call the ReducedDimensionPlot method.
- `.defineVisualShapeInterface(x)` will return NULL for this panel, as the shape aesthetic is not applicable to this panel that does not display individual data points.
- `.defineVisualSizeInterface(x)` overrides the equivalent method inherited from all parent classes and will return instead an HTML tag definition that contains a user input controlling the number of hexagonal bins in both vertical and horizontal directions.
- `.defineVisualOtherInterface(x)` will return NULL, as there are no additional visual parameters for this panel.
- `.allowableColorByDataChoices(x, se)` will return a character vector with the names of all continuous fields in colData(se), where se is the input SummarizedExperiment object.

For monitoring reactive expressions:
- `.createObservers(x, se, input, session, pObjects, rObjects)` sets up observers for all new slots described above, as well as in the parent classes via the ReducedDimensionPlot method.

For creating the plot:
- `.generateDotPlot(x, envir)` will return a list with plot, a ggplot2::ggplot() object; and commands, a character vector of commands to produce that object when evaluated inside envir.

For documentation:
- `.definePanelTour(x)` returns an data.frame containing the steps of a panel-specific tour.
- `.getDotPlotColorHelp(x, color_choices)` returns a function that generates an rintrojs tour for the color choice UI.

**Author(s)**
Kevin Rue-Albrecht
See Also

ReducedDimensionPlot, for the base class.

Examples

```r
library(scRNAseq)

# Example data ----
sce <- ReprocessedAllenData(assays="tophat_counts")
class(sce)

library(scater)
sce <- logNormCounts(sce, exprs_values="tophat_counts")

sce <- runPCA(sce, ncomponents=4)
sce <- runTSNE(sce)
rowData(sce)$ave_count <- rowMeans(assay(sce, "tophat_counts"))
rowData(sce)$n_cells <- rowSums(assay(sce, "tophat_counts") > 0)

# launch the app itself ----

if (interactive()) {
  iSEE(sce, initial=list(
    ReducedDimensionHexPlot(BinResolution=50),
    ReducedDimensionPlot()
  ))
}
```
Index

* internal
  iSEEhex-pkg, 2
  .allowableColorByDataChoices, 3
  .allowableColorByDataChoices, ReducedDimensionHexPlot-method
    (ReducedDimensionHexPlot-class), 2
  .createObservers, 3
  .createObservers, ReducedDimensionHexPlot-method
    (ReducedDimensionHexPlot-class), 2
  .definePanelTour, 3
  .definePanelTour, ReducedDimensionHexPlot-method
    (ReducedDimensionHexPlot-class), 2
  .defineVisualOtherInterface, 3
  .defineVisualOtherInterface, ReducedDimensionHexPlot-method
    (ReducedDimensionHexPlot-class), 2
  .defineVisualShapeInterface, 3
  .defineVisualShapeInterface, ReducedDimensionHexPlot-method
    (ReducedDimensionHexPlot-class), 2
  .defineVisualSizeInterface, 3
  .defineVisualSizeInterface, ReducedDimensionHexPlot-method
    (ReducedDimensionHexPlot-class), 2
  .fullName, 3
  .fullName, ReducedDimensionHexPlot-method
    (ReducedDimensionHexPlot-class), 2
  .generateDotPlot, 3
  .generateDotPlot, ReducedDimensionHexPlot-method
    (ReducedDimensionHexPlot-class), 2
  .getDotPlotColorHelp, 3
  .getDotPlotColorHelp, ReducedDimensionHexPlot-method
    (ReducedDimensionHexPlot-class), 2
  .hideInterface, ReducedDimensionHexPlot-method
    (ReducedDimensionHexPlot-class), 2
  .panelColor, ReducedDimensionHexPlot-method
    (ReducedDimensionHexPlot-class), 2
  colData(se), 3
  ColumnDotPlot, 2
  DotPlot, 2
  ggplot2::ggplot(), 3
  initialize, ReducedDimensionHexPlot-method
    (ReducedDimensionHexPlot-class), 2
  iSEEhex (iSEEhex-pkg), 2
  iSEEhex-package (iSEEhex-pkg), 2
  iSEEhex-package (iSEEhex-pkg, 2
  Panel, 2
  ReducedDimensionHexPlot, 3
  ReducedDimensionHexPlot
    (ReducedDimensionHexPlot-class), 2
  ReducedDimensionHexPlot-class, 2
  ReducedDimensionPlot, 2–4
  SummarizedExperiment, 3