Package 'ggseg3d'

October 13, 2022

Title Tri-Surface Mesh Plots for Brain Atlases

Version 1.6.3

Description Mainly contains a plotting function ggseg3d(),
and data of two standard brain atlases (Desikan-Killiany and aseg).
By far, the largest bit of the package is the data for each of the atlases.
The functions and data enable users to plot tri-surface mesh plots of
brain atlases, and customise these by projecting colours onto the brain
segments based on values in their own data sets. Functions are wrappers
for 'plotly'. Mowinckel & Vidal-Piñeiro (2020)
<doi:10.1177/2515245920928009>.

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Encoding UTF-8

RoxygenNote 7.1.1

Depends R (>= 2.10)

LazyData true

LazyDataCompression xz

Imports dplyr, plotly, magrittr, scales, tidyr, utils,

Suggests knitr, rmarkdown, covr, testthat (>= 2.1.0), devtools,
processx, spelling

URL https://github.com/ggseg/ggseg3d/

BugReports https://github.com/ggseg/ggseg3d/issues/

Language en-US

NeedsCompilation no

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Repository CRAN

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R topics documented:

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add_glassbrain   *Add glass brain to ggseg3d plot*

Description

Adds a translucent brain on top of a ggseg3d plot to create a point of reference, particularly important for sub-cortical plots.

Usage

```
add_glassbrain(
  p,
  hemisphere = c("left", "right"),
  colour = "#cecece",
  opacity = 0.3
)
```

Arguments

p	plotly object
hemisphere	string. hemisphere to plot ("left" or "right")
colour	string. colour to give the glass brain
opacity	numeric. transparency of the glass brain (0-1 float)

Value

plotly object with glass brain tri-surface mesh

Examples

```
library(dplyr)
ggseg3d(atlas="aseg_3d") %>%
   add_glassbrain("left")
```

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aseg_3d	*FreeSurfer automatic subcortical segmentation of a brain volume*

Description

Coordinate data for the subcortical parcellations implemented in FreeSurfer.

Usage

```
data(aseg_3d)
```

Format

A tibble with 4 observations and a nested data.frame

surf type of surface ('inflated' or 'white')

hemi hemisphere ('left" or 'right')

data data.frame of necessary variables for plotting

atlas String. atlas name

roi numbered region from surface

annot concatenated region name

label label 'hemi_annot' of the region

mesh list of meshes in two lists: vb and it

region name of region in full

colour HEX colour of region

References

Fischl et al., (2002). Neuron, 33:341-355 (PubMed)

See Also

Other ggseg3d_atlases: dk_3d

Examples

```
data(aseg_3d)
```

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dk_3d   *Desikan-Killiany Cortical Atlas*

Description

Mesh data for the Desikan-Killiany Cortical atlas, with 40 regions in on the cortical surface of the brain.

Usage

```
data(dk_3d)
```

Format

A tibble with 4 observations and a nested data.frame

surf type of surface ('inflated' or 'white')

hemi hemisphere ('left" or 'right')

data data.frame of necessary variables for plotting

atlas String. atlas name

roi numbered region from surface

annot concatenated region name

label label 'hemi_annot' of the region

mesh list of meshes in two lists: vb and it

acronym abbreviated name of annot

lobe lobe localization

region name of region in full

colour HEX colour of region

Details

A nested tibble for all available surfaces and hemispheres

References

Fischl et al. (2004) Cerebral Cortex 14:11-22 (PubMed)

See Also

Other ggseg3d_atlases: aseg_3d

Examples

```
data(dk_3d)
```

ggseg3d_atlas-class   *'ggseg3d_atlas' class*

Description

The 'ggseg_3datlas' class is a subclass of ['data.frame'][base::data.frame()], created in order to have different default behaviour. It heavily relies on the "tibble" ['tbl_df'][tibble::tibble()]. [tidyverse](https://www.tidyverse.org/packages/), including [dplyr](http://dplyr.tidyverse.org/), [ggplot2](http://ggplot2.tidyverse [tidyr](http://tidyr.tidyverse.org/), and [readr](http://readr.tidyverse.org/).

Usage

```
as_ggseg3d_atlas(x, return = FALSE)
```

Arguments

x	data.frame to be made a ggseg-atlas
return	return logical

Value

an object of class 'ggseg3d_atlas'. A nested tibble of different brain surface shapes, hemispheres and tri-surface mesh information for different brain regions in a specific atlas.

Properties of 'ggseg3d_atlas'

Objects of class 'ggseg3d_atlas' have: * A 'class' attribute of 'c("ggseg3d_atlas", "tbl_df", "tbl", "data.frame")'. * A base type of '"list"', where each element of the list has the same [NROW()]. * A lot of this script and its functions are taken from the ['tibble'][tibble::tibble()]-package

See Also

[tibble()], [as_tibble()], [tribble()], [print.tbl()], [glimpse()]

Examples

```
tmp <- as.data.frame(dk_3d)
class(tmp)
new_atlas <- as_ggseg3d_atlas(tmp)
class(new_atlas)
```

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is_ggseg3d_atlas   *Check if is ggseg_atlas-class*

Description

Check if is ggseg_atlas-class

Usage

```
is_ggseg3d_atlas(x)
```

Arguments

x   atlas object to check

Value

logical

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pan_camera   *Pan camera position of ggseg3d plot*

Description

The default position for plotly mesh plots are not satisfying for brain plots. This convenience function can pan the camera to lateral or medial view, or to custom made views if you are plotly savvy.

Usage

```
pan_camera(p, camera, aspectratio = 1)
```

Arguments

p   plotly object
camera   string or list.
aspectratio   camera aspect ratio

Value

plotly object

Examples

```
library(dplyr)
ggseg3d() %>%
   pan_camera("right lateral")
```

remove_axes   *Remove axis information from ggseg3d plot*

Description

When publishing data visualisation in 3d mesh plots in general the axes are not important, at least they are not for ggseg3d, where the axis values are arbitrary.

Usage

```
remove_axes(p)
```

Arguments

p   plotly object

Value

plotly object without axes

Examples

```
library(magrittr)
ggseg3d() %>%
   remove_axes()
```

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