

Package ‘archoViz’

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Type Package

Title Visualisation, Exploration, and Web Communication of
Archaeological Spatial Data

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Description An R 'Shiny' application for the visualisation, interactive exploration, and web communication of archaeological excavation data. It includes interactive 3D and 2D visualisations, generation of cross sections and maps of the remains, basic spatial analysis methods (convex hull, regression surfaces, 2D kernel density estimation), and excavation timeline visualisation. 'archoViz' can be used locally or deployed on a server, either with interactive input of data or with a static data set.

License GPL-3

Repository CRAN

Encoding UTF-8

Imports ggplot2, plotly, mgcv, cxhull, reshape2, svglite, htmlwidgets,
shiny, shinythemes, knitr,

Suggests covr, rmarkdown, markdown, testthat (>= 3.0.0)

Config/testthat/edition 3

VignetteBuilder knitr

URL <https://github.com/sebastien-plutniak/archeoviz>

BugReports <https://github.com/sebastien-plutniak/archeoviz/issues>

NeedsCompilation no

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archoViz	<i>archoViz</i>
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Description

Launch the archoViz application to visualise, interactive explore, and expose on the web archaeological data from excavation

Usage

```
archoViz(objects.df=NULL, refits.df=NULL, timeline.df=NULL,
         title=NULL, home.text=NULL, lang="en", set.theme="cosmo",
         square.size = 100,
         reverse.axis.values = NULL, reverse.square.names = NULL,
         add.x.square.labels = NULL, add.y.square.labels = NULL,
         class.variable = NULL, class.values = NULL,
         default.group = "by.layer", location.mode = NULL,
         map.z.val = NULL, map.density = "no", map.refits = NULL,
         plot3d.ratio = 1, plot3d.hulls = NULL, plot3d.surfaces = NULL,
         plot3d.refits = NULL,
         sectionX.x.val = NULL, sectionX.y.val = NULL, sectionX.refits = NULL,
         sectionY.x.val = NULL, sectionY.y.val = NULL, sectionY.refits = NULL,
         camera.center = NULL, camera.eye = NULL, run.plots = FALSE
        )
```

Arguments

<code>objects.df</code>	data frame, with data documenting the location and type of archaeological remains.
<code>refits.df</code>	data frame, with two columns containin the ids of refitting objects.
<code>timeline.df</code>	data frame, with data documenting the year of excavation of the site's squares.
<code>title</code>	character. Title to display on the application.
<code>home.text</code>	character. Html contents to display on the home page of the application.
<code>lang</code>	character. Language of the interface, one of 'en' (English), 'fr' (French), 'it' (Italian), 'pt' (Portuguese).
<code>set.theme</code>	character. Name of the shinytheme to use.

<code>square.size</code>	integer. Size (width and height) in centimeter of the squares in the grid system. Default value is 100 cm.
<code>reverse.axis.values</code>	character. Name of the axis or axes to be reversed (any combination of 'x', 'y', 'z').
<code>reverse.square.names</code>	character. Name of the axis or axes for which to reverse the order of the square labels (any combination of 'x', 'y', 'z').
<code>add.x.square.labels</code>	character. Additional square labels for the 'x' axis.
<code>add.y.square.labels</code>	character. Additional square labels for the 'y' axis.
<code>class.variable</code>	character. At the launch of the app, name of the variable to preselect.
<code>class.values</code>	character. At the launch of the app, names of the values to preselect.
<code>default.group</code>	character. At the launch of the app, preselection of the variable used to group data (one of 'by.layer' or 'by.variable').
<code>location.mode</code>	character. At the launch of the app, preselection of the location method (one of 'exact', 'fuzzy', 'show.uncertainty').
<code>map.z.val</code>	double. Minimal and maximal Z coordinates values to display in the map plot.
<code>map.density</code>	character. At the launch of the app, whether to compute and show density contours in the map plot (one of 'no', 'overall', 'by.variable').
<code>map.refits</code>	logical. Whether to show refits in the map plot.
<code>plot3d.ratio</code>	double. At the launch of the app, ratio of the vertical axis in the 3D plot.
<code>plot3d.hulls</code>	logical. At the launch of the app, whether to compute and show convex hulls in the 3D plot.
<code>plot3d.surfaces</code>	logical. At the launch of the app, whether to compute and show regression in the 3D plot.
<code>plot3d.refits</code>	logical. At the launch of the app, whether to show refits on the 3D section plot.
<code>sectionX.x.val</code>	double. At the launch of the app, minimal and maximal X coordinates values to display in the X section plot.
<code>sectionX.y.val</code>	double. At the launch of the app, minimal and maximal Y coordinates values to display in the X section plot.
<code>sectionX.refits</code>	logical. At the launch of the app, whether to show refits in the X section plot.
<code>sectionY.x.val</code>	double. At the launch of the app, minimal and maximal X coordinates values to display in the Y section plot.
<code>sectionY.y.val</code>	double. At the launch of the app, minimal and maximal Y coordinates values to display in the Y section plot.
<code>sectionY.refits</code>	logical. At the launch of the app, whether to show refits in the Y section plot.
<code>camera.center</code>	double. In 3D plot, coordinates of the point to which the camera is oriented, to pass to the 'plotly::layout()' function (default values: x=0, y=0, z=0).

<code>camera.eye</code>	double. In 3D plot, coordinates of the camera's view point to pass to the <code>'plotly::layout()'</code> function (default values: <code>x=1.25, y=1.25, z=1.25</code>).
<code>run.plots</code>	logical. Whether to immediately compute and show plots (without requiring the user to click on the buttons in the interface).

Details

This function launches the `'archoViz'` application. It can be used without parameter, allowing the user to input data through the "Input data" tab. Alternatively, the `'objects.df'` parameter, and the optional `'refits.df'` and `'timeline.df'` parameters, can be used to input data.frames about the archaeological objects, the refitting relationships between these objects, and the chronology of the excavation, respectively.

The aspect of the application can be modified using the `'title'`, `'home.text'`, and `'set.theme'` parameters. Possible values for the `'set.theme'` parameter includes the allowed values for the `'shinytheme()'` function (i.e., "cerulean", "cosmo", "cyborg", "darkly", "flatly", "journal", "lumen", "paper", "readable", "sandstone", "simplex", "slate", "spacelab", "superhero", "united", "yeti").

Value

Launch the `'archoViz'` Shiny application.

Author(s)

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See Also

shiny [shinytheme](#) [plotly](#) [layout](#) [ggplot2](#) [gam](#) [cxhull](#) [hullMesh](#)

Examples

```
## Not run:  
# running the app with no particular data and settings:  
archoViz()  
  
# running the app with a particular data set:  
objects <- demo_objects_data(1000)  
refits <- demo_refits_data(1000)  
archoViz(objects.df=objects, refits.df=refits, title="My data set")  
  
## End(Not run)
```

demo_objects_data *Generates an "objects" data set populated with random values.*

Description

A convenient function to generate a data set to be used for the `objects.df` parameter of the [archeoViz](#) function.

Usage

```
demo_objects_data(n.objects)
```

Arguments

`n.objects` numerical, number of objects to include in the data set.

Value

A `data.frame` with 12 columns ("id", "square_x", "square_y", "xmin", "xmax", "ymin", "ymax", "zmin", "zmax", "layer", "object_type", "object_class_size").

Author(s)

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Examples

```
## Not run: demo_objects_data(n.objects.df=100)
```

demo_refits_data *Generates a "refits" data set populated with random values.*

Description

A convenient function to generate a data set to be used for the `refits.df` parameter of the [archeoViz](#) function.

Usage

```
demo_refits_data(n.objects)
```

Arguments

`n.objects` numerical, number of objects between which refitting relationships must be created.

Value

A matrix with 2 columns containing random pairs of numerical values (corresponding to the unique identifiers of the objects generated with the [demo_objects_data](#) function).

Author(s)

Sebastien Plutniak <sebastien.plutniak at posteo.net>

Examples

```
## Not run: demo_refits_data(n.objects.df=100)
```

demo_timeline_data *Generates a "timeline" data set populated with random values.*

Description

A convenient function to generate a data set to be used for the `timeline.df` parameter of the [archoViz](#) function.

Usage

```
demo_timeline_data()
```

Details

Note that there is no correspondance between the data generated with `demo_timeline_data` and the data generated with `demo_objects_data` and `demo_refits_data`.

Value

A data frame with 3 columns containing random data ("year", "square_x", "square_y").

Author(s)

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Examples

```
## Not run: demo_timeline_data()
```

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