Package: juicr (via r-universe)

September 6, 2024

Version 0.2

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Title Automated and Manual Extraction of Numerical Data from Scientific Images

Description Provides a GUI interface for automating data extraction from multiple images containing scatter and bar plots, semi-automated tools to tinker with extraction attempts, and a fully-loaded point-and-click manual extractor with image zoom, calibrator, and classifier. Also provides detailed and R-independent extraction reports as fully-embedded .html records.

Type Package

Depends R (>= 3.3.2)

Imports XML, RCurl

SystemRequirements Tcl/Tk toolkit (X11 Quarts for Mac)

VignetteBuilder R.rsp

License GPL (>= 2)

URL <http://lajeunesse.myweb.usf.edu/> <https://github.com/mjlajeunesse/> <https://www.youtube.com/c/LajeunesseLab/>

Encoding UTF-8

RoxygenNote 7.1.1

Suggests EBImage, R.rsp

Repository https://mjlajeunesse.r-universe.dev

RemoteUrl https://github.com/mjlajeunesse/juicr

RemoteRef HEAD

RemoteSha 9c09656b240a35c0c82a1b871f5ecc04e40caf64

Contents

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juicr-package	*Automated, semi-automated, and manual extraction of numerical data from scientific images, plot, charts, and figures*

Description

juicr is a GUI interface for automating data extraction from multiple images containing scatter and bar plots, semi-automated tools to tinker with extraction attempts, and a fully-loaded point-and-click manual extractor with image zoom, calibrator, and classifier. Also provides detailed and R-independent extraction reports as fully-embedded .html records. More information about **juicr** can be found at <http://lajeunesse.myweb.usf.edu/>.

Details

What to cite?

Lajeunesse, M.J. (2021) Automated, semi-automated, and manual extraction of numerical data from scientific images, plot, charts, and figures. *R package, v.0.1*

Installation and Dependencies.

juicr has one external dependency that need to be installed and loaded prior to use in R. This is the EBImage R package (Pau et al. 2010) available only from the Bioconductor repository: <https://www.bioconductor.org/>.

To properly install **juicr**, start with the following R script that loads the Bioconductor resources needed to install the EBImage (also accept all of its dependencies):

```
install.packages("BiocManager");
BiocManager::install("EBImage"))
library(metagear)
```

Finally for Mac OS users, installation is sometimes not straighforward as the GUI_juicr() requires the Tcl/Tk GUI toolkit to be installed. You can get this toolkit by making sure the latest X11 application (xQuartz) is installed from here: <https://www.xquartz.org/>.

Author(s)

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References

Pau, G., Fuchs, F., Sklyar, O., Boutros, M. and Huber, W. (2010) EBImage: an R package for image processing with applications to cellular phenotypes. Bioinformatics 26: 979-981.

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file_getJuicr_Extractions

Reads a *_juicr.html report and retrieves data extractions and history.

Description

Reads a juicr generated report of image extractions contained within the .html file.

Usage

```
file_getJuicr_Extractions(aFileName = file.choose(), quiet = FALSE)
```

Arguments

aFileName   The file name and location of a *_juicr.html report. Prompts for file name if none is explicitly called. Must be .html format.

quiet   When "TRUE", does not display all extraction tables.

Value

A list of tables including all extractions, coordinates, image file names, and juicr GUI parameters.

See Also

[file_getJuicr_Images](#)

Examples

```
## Not run:

theExtraction <- file_getJuicr_Extractions("pretend_image_juicr.html")
print(theExtraction$points)


## End(Not run)
```

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file_getJuicr_Images	*Reads a *_juicr.html report and extracts images into working directory.*

Description

Reads a juicr generated report of image extractions contained within the .html file, and saves all images (e.g., original, standardized, and standardized with painted extractions).

Usage

```
file_getJuicr_Images(aFileName = file.choose(), quiet = FALSE)
```

Arguments

aFileName	The file name and location of a *_juicr.html report. Prompts for file name if none is explicitly called. Must be .html format.
quiet	When "TRUE", does not display the file names of all images extracted and saved to the working directory.

Value

A vector of file names of each image extracted from the .html file.

See Also

file_getJuicr_Extractions

Examples

```
## Not run:

file_getJuicr_Images("pretend_image_juicr.html")


## End(Not run)
```

GUI_juicr   *A GUI screener to quickly code candidate studies for inclu-*
                             sion/exclusion into a systematic review or meta-analysis.

Description

A GUI screener to help scan and evaluate the title and abstract of studies to be included in a systematic review or meta-analysis. A description of GUI options and layout is found here: http://lajeunesse.myweb.usf.edu/juicr/juicr_basic_vignette_v0.1.html.

Usage

```
GUI_juicr(
  theFigureFile = "",
  theJuicrFile = "",
  standardizeTheImage = TRUE,
  standardSize = 1000,
  figureWindowSize = c(800, 600),
  pointSize = 6,
  animateDelay = TRUE,
  groupNames = c("orangeGrp", "berryGrp", "cherryGrp", "plumGrp", "kiwiGrp",
    "bananaGrp", "grapeGrp", "pruneGrp"),
 groupColors = c("dark orange", "turquoise3", "tomato3", "orchid", "yellow green",
    "goldenrod2", "plum4", "saddle brown")
)
```

Arguments

theFigureFile	An optional file name and location of a .jpg, .png, or .tiff file containing the scientific image/plot/chart/figure to pre-load in the GUI. Within the GUI there is also a button to select the image file. Images in other formats should be converted to .png prior to using juicr.
theJuicrFile	An optional file name and location of a *_juicr.html report containing extractions and images from a previous juicr session to pre-load into the GUI. Within the GUI there is also a button to select an .html file.
standardizeTheImage	
	When "TRUE", all large images are standardized to a common size with a width specified by "standardSize". When "FALSE", the image is unaltered in size.
standardSize	The common width in pixels for standardizing large images; default is a width of 1000 pixels.
figureWindowSize	
	Specifies the window size containing the image. By default, this image-viewer window will be 800 (width) by 600 (height) pixels, larger images will be scrollable to fit this window.
pointSize	Changes the default size of a clickable data-point on the image. Size is the radius in pixels (default is 6).

animateDelay	When "TRUE", creates a very small pause when plotting individual automated extractions – giving an animated effect.
groupNames	A vector of the default eight names specifying the labels of each group. Default labels are fruit themed. Can be any size, but GUI will only print first 9 characters.
groupColors	A vector of the default eight color names specifying the coloring of each group. Are in color-names format, but can also be HEX.

Value

A console message of where saved .csv or *_juicr.html files are located.

Note

Installation and troubleshooting

For Mac OS users, installation is sometimes not straighforward as this GUI requires the Tcl/Tk GUI toolkit to be installed. You can get this toolkit by making sure the latest X11 application (xQuartz) is installed, see here: <https://www.xquartz.org/>. More information on installation is found in `juicrs`'s vignette.

Examples

```
## Not run:

GUI_juicr(system.file("images", "Kortum_and_Acymyan_2013_Fig4.jpg", package = "juicr"))


## End(Not run)
```

`Kam_et_al_2003_Fig2.jpg`

An example image of a scatterplot figure

Description

A jpg image of a scatterplot from Figure 2 of Kam, M., Cohen-Gross, S., Khokhlova, I.S., Degen, A.A. and Geffen, E. 2003. Average daily metabolic rate, reproduction and energy allocation during lactation in the Sundevall Jird Meriones crassus. Functional Ecology 17:496-503.

Format

A raw jpg-formated image

Note

How to use

```
readImage(system.file("images", "Kam_et_al_2003_Fig2.jpg", package = "juicr"))
```

Kortum_and_Acymyan_2013_Fig4.jpg

An example image of a bar plot figure

Description

A jpg image of a bar plot from Figure 4 of Kortum, P., and Acymyan, C.Z. 2013. How low can you go? Is the System Usability Scale range restricted? Journal of Usability Studies 9:14-24.

Format

A raw jpg-formated image

Note

How to use

```
readImage(system.file("images", "Kortum_and_Acymyan_2013_Fig4.jpg", package = "juicr"))
```

Index