visHexAnimate

June 24, 2016

---

visHexAnimate	*Function to animate multiple component planes of a supra-hexagonal grid*

Description

visHexAnimate is supposed to animate multiple component planes of a supra-hexagonal grid. The output can be a pdf file containing a list of frames/images, a mp4 video file or a gif file. To support video output file, the software 'ffmpeg' must be first installed (also put its path into the system PATH variable; see Note). To support gif output file, the software 'ImageMagick' must be first installed (also put its path into the system PATH variable; see Note).

Usage

```
visHexAnimate(sMap, which.components = NULL, filename =
"visHexAnimate",
filetype = c("pdf", "mp4", "gif"), image.type = c("jpg", "png"),
sec_per_frame = 1, margin = rep(0.1, 4), height = 7, title.rotate = 0,
title.xy = c(0.45, 1), colormap = c("bwr", "jet", "gbr", "wyr", "br",
"yr", "rainbow", "wb"), ncolors = 40, zlim = NULL,
border.color = "transparent", gp = grid::gpar())
```

Arguments

sMap	an object of class "sMap"
which.components	
	an integer vector specifying which compopnets will be visualised. By default, it is NULL meaning all components will be visualised
filename	the without-extension part of the name of the output file. By default, it is 'visHexAnimate'
filetype	the type of the output file, i.e. the extension of the output file name. It can be one of either 'pdf' for the pdf file, 'mp4' for the mp4 video file, 'gif' for the gif file
image.type	the type of the image files temporarily generated. It can be one of either 'jpg' or 'png'. These temporary image files are used for producing mp4/gif output file. The reason doing so is to accommodate that sometimes only one of image types is supported so that you can choose the right one

1

sec_per_frame	a numeric value specifying how long (seconds) it takes to stream a frame/image. This argument only works when producing mp4 video or gif file.
margin	margins as units of length 4 or 1
height	a numeric value specifying the height of device
title.rotate	the rotation of the title
title.xy	the coordinates of the title
colormap	short name for the colormap. It can be one of "jet" (jet colormap), "bwr" (blue-white-red colormap), "gbr" (green-black-red colormap), "wyr" (white-yellow-red colormap), "br" (black-red colormap), "yr" (yellow-red colormap), "wb" (white-black colormap), and "rainbow" (rainbow colormap, that is, red-yellow-green-cyan-blue-magenta). Alternatively, any hyphen-separated HTML color names, e.g. "blue-black-yellow", "royalblue-white-sandybrown", "darkgreen-white-darkviolet". A list of standard color names can be found in http://html-color-codes.info/color-names
ncolors	the number of colors specified
zlim	the minimum and maximum z values for which colors should be plotted, defaulting to the range of the finite values of z. Each of the given colors will be used to color an equispaced interval of this range. The midpoints of the intervals cover the range, so that values just outside the range will be plotted
border.color	the border color for each hexagon
gp	an object of class gpar, typically the output from a call to the function gpar (i.e., a list of graphical parameter settings)

Value

If specifying the output file name (see argument 'filename' above), the output file is either 'filename.pdf' or 'filename.mp4' or 'filename.gif' in the current working directory. If no output file name specified, by default the output file is either 'visHexAnimate.pdf' or 'visHexAnimate.mp4' or 'visHexAnimate.gif'

Note

When producing mp4 video, this function requires the installation of the software 'ffmpeg' at https://www.ffmpeg.org. Shell command lines for ffmpeg installation in Terminal (for both Linux and Mac) are:

- 1) `wget -O ffmpeg.tar.gz http://www.ffmpeg.org/releases/ffmpeg-2.7.1.tar.gz`

- 2) `mkdir ~/ffmpeg | tar xvfz ffmpeg.tar.gz -C ~/ffmpeg --strip-components=1`

- 3) `cd ffmpeg`

- 4a) # Assuming you want installation with a ROOT (sudo) privilege:
  `./configure --disable-yasm`

- 4b) # Assuming you want local installation without ROOT (sudo) privilege:
  `./configure --disable-yasm --prefix=$HOME/ffmpeg`

- 5) `make`

- 6) `make install`

- 7) # add the system PATH variable to your ~/.bash_profile file if you follow 4b) route:
  `export PATH=$HOME/ffmpeg:$PATH`

- 8) # make sure ffmpeg has been installed successfully:
  `ffmpeg -h`

When producing gif file, this function requires the installation of the software 'ImageMagick' at http://www.imagemagick.org. Shell command lines for ImageMagick installation in Terminal are:

- 1) `wget http://www.imagemagick.org/download/ImageMagick.tar.gz`
- 2) `mkdir ~/ImageMagick | tar xvzf ImageMagick.tar.gz -C ~/ImageMagick --strip-components=1`
- 3) `cd ImageMagick`
- 4) `./configure --prefix=$HOME/ImageMagick`
- 5) `make`
- 6) `make install`
- 7) # add the system PATH variable to your ~/.bash_profile file.
  For Linux:
  `export MAGICK_HOME=$HOME/ImageMagick`
  `export PATH=$MAGICK_HOME/bin:$PATH`
  `export LD_LIBRARY_PATH=${LD_LIBRARY_PATH:+$LD_LIBRARY_PATH:}$MAGICK_HOME/lib`
  For Mac:
  `export MAGICK_HOME=$HOME/ImageMagick`
  `export PATH=$MAGICK_HOME/bin:$PATH`
  `export DYLD_LIBRARY_PATH=$MAGICK_HOME/lib/`
- 8a) # check configuration:
  `convert -list configure`
- 8b) # check image format supported:
  `identify -list format`
- Tips:
  Prior to 4), please make sure `libjpeg` and `libpng` are installed. If NOT, for Mac try this:
  `brew install libjpeg libpng`
  To check whether ImageMagick does work, please get additional information from:
  `identify -list format`
  `convert -list configure`
  On details, please refer to http://www.imagemagick.org/script/advanced-unix-installation.php

See Also

visHexMulComp

Examples

```
## Not run:
# 1) generate data with an iid matrix of 1000 x 3
data <- cbind(matrix(rnorm(1000*3,mean=0,sd=1), nrow=1000, ncol=3),
matrix(rnorm(1000*3,mean=0.5,sd=1), nrow=1000, ncol=3),
matrix(rnorm(1000*3,mean=-0.5,sd=1), nrow=1000, ncol=3))
colnames(data) <- c("S1","S1","S1","S2","S2","S2","S3","S3","S3")

# 2) sMap resulted from using by default setup
sMap <- sPipeline(data=data)

# 3) animate sMap
```

```
# output as a <a href="visHexAnimate.pdf">pdf</a> file
visHexAnimate(sMap, filename="visHexAnimate", filetype="pdf")
# output as a <a href="visHexAnimate.mp4">mp4</a> file
visHexAnimate(sMap, filename="visHexAnimate", filetype="mp4")
# output as a <a href="visHexAnimate.gif">gif</a> file
visHexAnimate(sMap, filename="visHexAnimate", filetype="gif")

## End(Not run)
```