Package 'image2data'

February 24, 2022

Type Package

Title Turn Images into Data Sets

Version 1.0.0

Description The goal of 'image2data' is to extract images and return them into a data set, especially for teaching data manipulation and data visualization. Basically, the eponymous function takes an image file ('png', 'tiff', 'jpeg', 'bmp') and turn it into a data set, pixels being rows (subjects) and columns (variables) being their coordinate positions (x- and y-axis) and their respective color (in hex codes). The function can return a complete image or a range of color (i.e., contour, silhouette). The data can then be manipulated as would any data set by either creating other related variables (to hide the image) or as a genuine toy data set.

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Encoding UTF-8

RoxygenNote 7.1.2

Imports readbitmap (>= 0.1.0)

NeedsCompilation no

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R topics documented:

image2data *Turn an image into data*

Description

Extract an image file ("png","tiff","jpeg","bmp") and turn it into an enjoyable data set, pixels being rows (subjects) and columns (variables) being their coordinate positions (x and y axis) and their respective color (in hex codes).

Usage

```
image2data(
  path,
  type = "fill",
  scaling = "standardized",
  showplot = TRUE,
  reduce = 1,
  A = 1,
  R = c(0, 0.05),
  G = c(0, 0.05),
  B = c(0, 0.05),
  Grey = NULL,
  precision = 1,
  seed = NULL
)
```

Arguments

path	Path to image file.
type	Type of extraction of data. type = "fill" (default) returns the complete image as data whereas type = "line" returns a specific range of color (default is black).
scaling	Tranform the data to a specified scale. Three options are available : "standardized","original","norm scaling = "standardized" converts data in a standardized form, $\mu = 0, \sigma = 1$ (default); scaling = "normalized" converts data in a normalized form (to unit vectors); and scaling = "original" keeps the data untransformed.
showplot	Show a preliminary plot of the data (default is TRUE).
reduce	reduce can be a number reduce > 0 or reduce = "unique". By default reduce = 1, so all pixels are returned. Specified values between 0 to 1 will return the corrresponding proportion of the pixels. Values over 1 will return the number of pixels (e.g., reduce = 3 returns 3 data). If the chosen number is over the number of pixels, then random duplicates are added. If reduce = "unique" only unique elements (given a certain precision) are returned.
A	Transparency, otherwise known as α. By default, only non transparent (A = 1) values are returned. Semi-transparent colors (0 < A < 1) are supported. Values

	between the A to 1 range will be return. If A = 0, all pixels are returned regardless of transparency.
R, G, B	Color to return with type = "line" (the default range is c(0, .05) for each, i.e., black). A single "range" of color can be used.
Grey	Grey range to be returned with type = "line". Grey overwrites R,G,B and behaves similarly. Default is NULL
precision	Set precision of reduce = "unique". Default is 1. It can be any integer >0. Values closer to zero are less precised (less data), higher values are more precise (more data).
seed	Set seed value for random pixel returned with reduce.

Value

A data frame with pixels as rows and columns are x and y coordinates and g is their color in hex (factors).

Examples

```
path <- system.file(file.path("extdata", "success.png"), package = "image2data")
image2data(path = path, type = "line")
image2data(path = path, type = "line", Grey = c(0,.50))

## Not run:
image2data(path = file.choose())

## End(Not run)
```

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