

Package ‘image2data’

August 22, 2022

Type Package

Title Turn Images into Data Sets

Version 1.0.1

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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 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	Transform the data to a specified scale. Three options are available: "standardized", "original", "normalized". 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 corresponding 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 <code>type = "line"</code> (the default range is <code>c(0, .05)</code> for each, i.e., black). A single "range" of color can be used.
Grey	Grey range to be returned with <code>type = "line"</code> . Grey overwrites R, G, B and behaves similarly. Default is NULL
precision	Set precision of <code>reduce = "unique"</code> . 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 <code>reduce</code> .

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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