

Package ‘viridisLite’

October 12, 2022

Type Package

Title Colorblind-Friendly Color Maps (Lite Version)

Version 0.4.1

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Description Color maps designed to improve graph readability for readers with common forms of color blindness and/or color vision deficiency. The color maps are also perceptually-uniform, both in regular form and also when converted to black-and-white for printing. This is the 'lite' version of the 'viridis' package that also contains 'ggplot2' bindings for discrete and continuous color and fill scales and can be found at <https://cran.r-project.org/package=viridis>.

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Encoding UTF-8

Depends R (>= 2.10)

Suggests hexbin (>= 1.27.0), ggplot2 (>= 1.0.1), testthat, covr

URL <https://sjmgarnier.github.io/viridisLite/>,
<https://github.com/sjmgarnier/viridisLite/>

BugReports <https://github.com/sjmgarnier/viridisLite/issues/>

RoxygenNote 7.2.1

NeedsCompilation no

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Repository CRAN

Date/Publication 2022-08-22 14:20:03 UTC

R topics documented:

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viridis *Viridis Color Palettes*

Description

This function creates a vector of n equally spaced colors along the selected color map.

Usage

```
viridis(n, alpha = 1, begin = 0, end = 1, direction = 1, option = "D")
viridisMap(n = 256, alpha = 1, begin = 0, end = 1, direction = 1, option = "D")
magma(n, alpha = 1, begin = 0, end = 1, direction = 1)
inferno(n, alpha = 1, begin = 0, end = 1, direction = 1)
plasma(n, alpha = 1, begin = 0, end = 1, direction = 1)
cividis(n, alpha = 1, begin = 0, end = 1, direction = 1)
rocket(n, alpha = 1, begin = 0, end = 1, direction = 1)
mako(n, alpha = 1, begin = 0, end = 1, direction = 1)
turbo(n, alpha = 1, begin = 0, end = 1, direction = 1)
```

Arguments

| | |
|-----------|--|
| n | The number of colors (≥ 1) to be in the palette. |
| alpha | The alpha transparency, a number in $[0,1]$, see argument alpha in hsv . |
| begin | The (corrected) hue in $[0,1]$ at which the color map begins. |
| end | The (corrected) hue in $[0,1]$ at which the color map ends. |
| direction | Sets the order of colors in the scale. If 1, the default, colors are ordered from darkest to lightest. If -1, the order of colors is reversed. |
| option | A character string indicating the color map option to use. Eight options are available: <ul style="list-style-type: none"> • "magma" (or "A") • "inferno" (or "B") |

- "plasma" (or "C")
- "viridis" (or "D")
- "cividis" (or "E")
- "rocket" (or "F")
- "mako" (or "G")
- "turbo" (or "H")

Details

Here are the color scales:



`magma()`, `plasma()`, `inferno()`, `cividis()`, `rocket()`, `mako()`, and `turbo()` are convenience functions for the other color map options, which are useful when the scale must be passed as a function name.

Semi-transparent colors ($0 < \alpha < 1$) are supported only on some devices: see [rgb](#).

Value

`viridis` returns a character vector, `cv`, of color hex codes. This can be used either to create a user-defined color palette for subsequent graphics by `palette(cv)`, a `col =` specification in graphics functions or in `par`.

`viridisMap` returns a `n` lines data frame containing the red (R), green (G), blue (B) and alpha (`alpha`) channels of `n` equally spaced colors along the selected color map. `n = 256` by default.

Author(s)

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Examples

```
library(ggplot2)
library(hexbin)

dat <- data.frame(x = rnorm(10000), y = rnorm(10000))

ggplot(dat, aes(x = x, y = y)) +
  geom_hex() + coord_fixed() +
  scale_fill_gradientn(colours = viridis(256, option = "D"))

# using code from RColorBrewer to demo the palette
n = 200
image(
  1:n, 1, as.matrix(1:n),
  col = viridis(n, option = "D"),
  xlab = "viridis n", ylab = "", xaxt = "n", yaxt = "n", bty = "n"
)
```

viridis.map

Color Map Data

Description

A data set containing the RGB values of the color maps included in the package. These are:

- 'magma', 'inferno', 'plasma', and 'viridis' as defined in Matplotlib for Python. These color maps are designed in such a way that they will analytically be perfectly perceptually-uniform, both in regular form and also when converted to black-and-white. They are also designed to be perceived by readers with the most common form of color blindness. They were created by [Stéfan van der Walt](#) and [Nathaniel Smith](#);
- 'cividis', a corrected version of 'viridis', 'cividis', developed by Jamie R. Nuñez, Christopher R. Anderton, and Ryan S. Renslow, and originally ported to R by Marco Sciaini. It is designed to be perceived by readers with all forms of color blindness;
- 'rocket' and 'mako' as defined in Seaborn for Python;
- 'turbo', an improved Jet rainbow color map for reducing false detail, banding and color blindness ambiguity.

Usage

viridis.map

Format

A data frame with 2048 rows and 4 variables:

- R: Red value;
- G: Green value;
- B: Blue value;
- opt: The colormap "option" (A: magma; B: inferno; C: plasma; D: viridis; E: cividis; F: rocket; G: mako; H: turbo).

Author(s)

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References

- 'magma', 'inferno', 'plasma', and 'viridis': <https://bids.github.io/colormap/>
- 'cividis': <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0199239>
- 'rocket' and 'mako': <https://seaborn.pydata.org/index.html>
- 'turbo': <https://ai.googleblog.com/2019/08/turbo-improved-rainbow-colormap-for.html>

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