Package ‘viridis’

October 12, 2022

Type  Package
Title  Colorblind-Friendly Color Maps for R
Version  0.6.2
Maintainer  Simon Garnier <garnier@njit.edu>
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 package also contains ‘ggplot2’ bindings for discrete and continuous color and fill scales. A lean version of the package called ‘viridisLite’ that does not include the ‘ggplot2’ bindings can be found at <https://cran.r-project.org/package=viridisLite>.
License  MIT + file LICENSE
Encoding  UTF-8
Depends  R (>= 2.10), viridisLite (>= 0.4.0)
Imports  stats, ggplot2 (>= 1.0.1), gridExtra
Suggests  hexbin (>= 1.27.0), scales, MASS, knitr, dichromat, colorspace, raster, rasterVis, httr, mapproj, vdiffr, svglite (>= 1.2.0), testthat, covr, rmarkdown, rgdal, maps
LazyData  true
VignetteBuilder  knitr
BugReports  https://github.com/sjmgarnier/viridis/issues
RoxygenNote  7.1.2
NeedsCompilation  no
Author  Simon Garnier [aut, cre], Noam Ross [ctb, cph], Bob Rudis [ctb, cph], Marco Sciaini [ctb, cph],
scale_fill_viridis

Viridis Color Scales for ggplot2

Description

Scale functions (fill and colour/color) for ggplot2.

For discrete == FALSE (the default) all other arguments are as to scale_fill_gradientn or scale_color_gradientn. Otherwise the function will return a discrete_scale with the plot-computed number of colors.

See viridis and viridis.map for more information on the color palettes.

Usage

scale_fill_viridis(
  ..., 
  alpha = 1, 
  begin = 0, 
  end = 1, 
  direction = 1, 
  discrete = FALSE, 
  option = "D"
)

scale_color_viridis(
  ..., 
  alpha = 1, 
  begin = 0, 
  end = 1, 
  direction = 1, 
  discrete = FALSE, 
  option = "D"
)
scale_fill_viridis

scale_colour_viridis(
  ..., 
  alpha = 1, 
  begin = 0, 
  end = 1, 
  direction = 1, 
  discrete = FALSE, 
  option = "D"
)

Arguments

... Parameters to discrete_scale if discrete == TRUE, or scale_fill_gradientn/
scale_color_gradientn if discrete == FALSE.
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 as output by
viridis_pal. If -1, the order of colors is reversed.
discrete Generate a discrete palette? (default: FALSE - generate continuous palette).
option A character string indicating the color map option to use. Eight options are
available:
  • "magma" (or "A")
  • "inferno" (or "B")
  • "plasma" (or "C")
  • "viridis" (or "D")
  • "cividis" (or "E")
  • "rocket" (or "F")
  • "mako" (or "G")
  • "turbo" (or "H")

Author(s)

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Bob Rudis <bob@rud.is> / @hrbrmstr
Simon Garnier: <garnier@njit.edu> / @sjmgarnier

Examples

library(ggplot2)

# Ripped from the pages of ggplot2
p <- ggplot(mtcars, aes(x = wt, y = mpg))
p + geom_point(size = 4, aes(colour = factor(cyl))) +
  scale_color_viridis(discrete = TRUE) +
  theme_bw()
# Ripped from the pages of ggplot2

dsub <- subset(diamonds, x > 5 & x < 6 & y > 5 & y < 6)
dsub$diff <- with(dsub, sqrt(abs(x - y)) * sign(x - y))
d <- ggplot(dsub, aes(x, y, colour = diff)) + geom_point()
d + scale_color_viridis() + theme_bw()

# From the main viridis example

dat <- data.frame(x = rnorm(10000), y = rnorm(10000))
ggplot(dat, aes(x = x, y = y)) +
  geom_hex() + coord_fixed() +
  scale_fill_viridis() + theme_bw()

library(ggplot2)
library(MASS)
library(gridExtra)

data("geyser", package = "MASS")
ggplot(geyser, aes(x = duration, y = waiting)) +
  xlim(0.5, 6) + ylim(40, 110) +
  stat_density2d(aes(fill = ..level..), geom = "polygon") +
  theme_bw() +
  theme(panel.grid = element_blank()) -> gg

gg + scale_fill_viridis(option = "A") + labs(x = "Viridis A", y = NULL),
gg + scale_fill_viridis(option = "B") + labs(x = "Viridis B", y = NULL),
gg + scale_fill_viridis(option = "C") + labs(x = "Viridis C", y = NULL),
gg + scale_fill_viridis(option = "D") + labs(x = "Viridis D", y = NULL),
gg + scale_fill_viridis(option = "E") + labs(x = "Viridis E", y = NULL),
gg + scale_fill_viridis(option = "F") + labs(x = "Viridis F", y = NULL),
gg + scale_fill_viridis(option = "G") + labs(x = "Viridis G", y = NULL),
gg + scale_fill_viridis(option = "H") + labs(x = "Viridis H", y = NULL),
ncol = 4, nrow = 2

\[ \text{unemp} \]

\textbf{USA Unemployment in 2009}

\begin{tabular}{ll}
\hline
\textbf{unemp} & USA Unemployment in 2009 \\
\hline
\end{tabular}

\textbf{Description}

A data set containing the 2009 unemployment data in the USA by county.

\textbf{Usage}

\texttt{unemp}
**viridis_pal**

**Format**
A data frame with 3218 rows and 8 variables:

- **id**: the county ID number
- **state_fips**: the state FIPS number
- **county_fips**: the county FIPS number
- **name**: the county name
- **year**: the year
- **rate**: the unemployment rate
- **county**: the county abbreviated name
- **state**: the state acronym

**Source**
http://datasets.flowingdata.com/unemployment09.csv

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**viridis_pal**  
**Viridis Color Palettes**

**Description**
A wrapper function around `viridis` to turn it into a palette function compatible with `discrete_scale`.

**Usage**

```
viridis_pal(alpha = 1, begin = 0, end = 1, direction = 1, option = "D")
```

**Arguments**

<table>
<thead>
<tr>
<th>Argument</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>alpha</td>
<td>The alpha transparency, a number in [0,1], see argument alpha in <code>hsv</code>.</td>
</tr>
<tr>
<td>begin</td>
<td>The (corrected) hue in [0,1] at which the color map begins.</td>
</tr>
<tr>
<td>end</td>
<td>The (corrected) hue in [0,1] at which the color map ends.</td>
</tr>
<tr>
<td>direction</td>
<td>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.</td>
</tr>
<tr>
<td>option</td>
<td>A character string indicating the color map option to use. Eight options are available:</td>
</tr>
<tr>
<td></td>
<td>• &quot;magma&quot; (or &quot;A&quot;)</td>
</tr>
<tr>
<td></td>
<td>• &quot;inferno&quot; (or &quot;B&quot;)</td>
</tr>
<tr>
<td></td>
<td>• &quot;plasma&quot; (or &quot;C&quot;)</td>
</tr>
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<td>• &quot;cividis&quot; (or &quot;E&quot;)</td>
</tr>
<tr>
<td></td>
<td>• &quot;rocket&quot; (or &quot;F&quot;)</td>
</tr>
<tr>
<td></td>
<td>• &quot;mako&quot; (or &quot;G&quot;)</td>
</tr>
<tr>
<td></td>
<td>• &quot;turbo&quot; (or &quot;H&quot;)</td>
</tr>
</tbody>
</table>
Details

See `viridis` and `viridis.map` for more information on the color palettes.

Author(s)

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Simon Garnier: <garnier@njit.edu> / @sjmgarnier

Examples

```
library(scales)
show_col(viridis_pal()(12))
```
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