Package: ggvolcano (via r-universe)

November 5, 2024

Title Publication-Ready Volcano Plots

Version 0.1.3

Description Provides publication-ready volcano plots for visualizing differential expression results, commonly used in RNA-seq and similar analyses. This tool helps create high-quality visual representations of data using the 'ggplot2' framework Wickham (2016) <doi:10.1007/978-3-319-24277-4>.

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Imports config (>= 0.3.2), ggplot2, ggrepel, golem (>= 0.4.1), shiny (>= 1.8.1.1)

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Repository https://yaoxiangli.r-universe.dev

RemoteUrl https://github.com/cran/ggvolcano

RemoteRef HEAD

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ggvolcano *Publication-ready volcano plots*

Description

Creates a volcano plot to visualize differential expression results. This function is highly configurable to suit publication standards.

Usage

```
ggvolcano(
  data,
  labels = "",
  logFC_col,
  pval_col,
 x_limits = c(min(data[[logFC_col]], na.rm = TRUE) - 1.5, max(data[[logFC_col]], na.rm =
    TRUE) + 1.5),
  y_limits = c(0, max(-log10(data[[pval_col]]), na.rm = TRUE) + 5),
  xlab = bquote(~Log[2] ~ "fold change"),
  ylab = bquote(~-Log[10] ~ italic(P)),
  title = "Volcano plot",
  subtitle = "",
  caption = paste0("total = ", nrow(data), " variables"),
  pval_cutoff = 1e-06,
  logFC_cutoff = 1,
  cutoff_line = list(type = "longdash", color = "black", width = 0.4),
 point_aes = list(size = 1.5, shape = c(19, 19, 19, 19), color = c("grey30", "#00CD6C",
    "#009ADE", "#FF1F5B"), alpha = 0.9),
  label_aes = list(size = 2.5, color = "black", face = "plain", parse = FALSE),
 legend_aes = list(labels = c("NS", expression(Log[2] ~ FC), "p-value", expression(p -
   value ~ and ~ log[2] ~ FC)), position = "right", label_size = 14, icon_size = 5),
  shade_options = NULL,
 connector_aes = list(line_width = 0.5, arrow_type = "closed", arrow_ends = "first",
    arrow_length = unit(0.01, "npc"), line_color = "grey10", direction = "both",
    draw_arrowheads = TRUE),
  gridlines = list(major = TRUE, minor = TRUE),
  plot_border = "partial",
  border_width = 0.8,
  border_color = "black",
  horizontal_line = NULL,
  horizontal_line_aes = list(type = "longdash", color = "black", width = 0.4)
)
```

Arguments

data	A data frame containing test statistics. Requires at least columns for variable names, log2 fold changes, and p-values.

labels	Column name or row names for variable names.
logFC_col	Column name for log2 fold changes.
pval_col	Column name for nominal or adjusted p-values.
x_limits	Limits of the x-axis (default auto-calculated).
y_limits	Limits of the y-axis (default auto-calculated).
xlab	X-axis label.
ylab	Y-axis label.
title	Plot title.
subtitle	Plot subtitle.
caption	Plot caption.
pval_cutoff	P-value cutoff for significance.
logFC_cutoff	Log2 fold-change cutoff for significance.
cutoff_line	List of options for cutoff lines (‘type‘, ‘color‘, ‘width‘).
point_aes	List of aesthetic options for points (‘size‘, ‘shape‘, ‘color‘, ‘alpha‘).
label_aes	List of aesthetic options for labels (‘size‘, ‘color‘, ‘face‘, ‘parse‘).
legend_aes	List of aesthetic options for legend (‘labels‘, ‘position‘, ‘label_size‘, ‘icon_size‘).
shade_options	List of options for shading regions in the plot.
connector_aes	List of aesthetic options for connectors (‘line_width‘, ‘arrow_type‘, ‘arrow_ends‘, ‘arrow_length‘, ‘line_color‘, ‘direction‘, ‘draw_arrowheads‘).
gridlines	List with logical values indicating whether to draw gridlines (‘major‘, ‘minor‘).
plot_border	Add a border for plot axes (‘"partial"‘ or ‘"full"‘).
border_width	Width of the border.
border_color	Color of the border.
horizontal_line	Numeric value(s) for drawing horizontal line(s).
horizontal_line_aes	List of aesthetic options for the horizontal line(s) (‘type‘, ‘color‘, ‘width‘).

Value

A ggplot2 object representing the volcano plot.

Examples

```
data <- read.csv(system.file("extdata", "example.csv", package = "ggvolcano"))

ggvolcano(data,
  logFC_col = "log2FoldChange",
  pval_col = "pvalue",
  pval_cutoff = 10e-4,
  logFC_cutoff = 1.5,
  x_limits = c(-5.5, 5.5),
  y_limits = c(0, -log10(10e-12)),
```

```
  title = "Example Volcano plot",
  caption = "FC cutoff, 1.5; p-value cutoff, 10e-4",
  gridlines = list(major = TRUE, minor = TRUE),
  horizontal_line = 10e-8, # Draw horizontal line for p-value cutoff
  horizontal_line_aes = list(type = "dashed", color = "red", width = 0.5)
)
```

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