Package ‘ggrastr’

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Type Package
Title Raster Layers for 'ggplot2'
Version 0.2.1
Description Provides a set of geoms to rasterize only specific layers of the plot while simultaneously keeping all labels and text in vector format. This allows users to keep plots within the reasonable size limit without losing vector properties of the scale-sensitive information.
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geom_beeswarm_rast

Description

This geom is similar to geom_beeswarm, but creates a raster layer

Usage

geom_beeswarm_rast(
  ..., 
  priority = c("ascending", "descending", "density", "random", "none"), 
  cex = 1, 
  groupOnX = NULL, 
  dodge.width = 0, 
  raster.dpi = 300, 
  dev = "cairo" 
)

Arguments

... Other arguments passed on to layer(). These are often aesthetics, used to set an aesthetic to a fixed value, like colour = "red" or size = 3. They may also be parameters to the paired geom/stat.

priority Method used to perform point layout (see ggbeeswarm::position_beeswarm)

cex Scaling for adjusting point spacing (see ggbeeswarm::position_beeswarm)

groupOnX Should jitter be added to the x axis if TRUE or y axis if FALSE (the default NULL causes the function to guess which axis is the categorical one based on the number of unique entries in each) Refer to see ggbeeswarm::position_beeswarm

dodge.width Amount by which points from different aesthetic groups will be dodged. This requires that one of the aesthetics is a factor. (see ggbeeswarm::position_beeswarm)

raster.dpi An integer of length one setting the desired resolution in dots per inch. (default=NULL)

dev A character specifying a device. Can be one of: "cairo", "ragg" or "ragg_png". (default="cairo")
**geom_boxplot_jitter**

**Value**

geom_beeswarm plot with rasterized layer

**Examples**

```r
library(ggplot2)
library(ggrastr)

ggplot(mtcars) + geom_beeswarm_rast(aes(x = factor(cyl), y = mpg), raster.dpi = 600, cex = 1.5)
```

**Description**

This geom is similar to `geom_boxplot`, but allows to jitter outlier points and to raster points layer.

**Usage**

```r
ggplot(mtcars) + geom_beeswarm_rast(aes(x = factor(cyl), y = mpg), raster.dpi = 600, cex = 1.5)
```

**Arguments**

- **mapping**
  - Set of aesthetic mappings created by `aes()` or `aes_()`.
  - If specified and `inherit.aes` = TRUE (the default), it is combined with the default mapping at the top level of the plot. You must supply `mapping` if there is no plot mapping.

- **data**
  - The data to be displayed in this layer.
  - There are three options:
    - If NULL, the default, the data is inherited from the plot data as specified in the call to `ggplot()`.
      - A `data.frame`, or other object, will override the plot data. All objects will be fortified to produce a data frame. See `fortify()` for which variables will be created.
geom_boxplot_jitter

A function will be called with a single argument, the plot data. The return value must be a data.frame, and will be used as the layer data. A function can be created from a formula (e.g. ~ head(.x,10)).

dev  A character specifying a device (default="cairo"). Can be one of: "cairo", "ragg" or "ragg_png".

stat Use to override the default connection between geom_boxplot and stat_boxplot.

position Position adjustment, either as a string, or the result of a call to a position adjustment function.

na.rm If FALSE, the default, missing values are removed with a warning. If TRUE, missing values are silently removed.

show.legend logical. Should this layer be included in the legends? NA, the default, includes if any aesthetics are mapped. FALSE never includes, and TRUE always includes. It can also be a named logical vector to finely select the aesthetics to display.

inherit.aes If FALSE, overrides the default aesthetics, rather than combining with them. This is most useful for helper functions that define both data and aesthetics and shouldn’t inherit behaviour from the default plot specification, e.g. borders().

... Other arguments passed on to layer(). These are often aesthetics, used to set an aesthetic to a fixed value, like colour = "red" or size = 3. They may also be parameters to the paired geom/stat.

outlier.jitter.width Amount of horizontal jitter. The jitter is added in both positive and negative directions, so the total spread is twice the value specified here (default=NULL)

outlier.jitter.height Amount of horizontal jitter. The jitter is added in both positive and negative directions, so the total spread is twice the value specified here (default=0)

raster.dpi Resolution of the rastered image (default=300). Ignored if raster == FALSE.

Value
gem_boxplot plot with rasterized layer

Aesthetics

gem_boxplot() understands the following aesthetics (required aesthetics are in bold):

- x or y
- lower or xlower
- upper or xupper
- middle or xmiddle
- ymin or xmin
- ymax or xmax
- alpha
- colour
- fill
geom_jitter_rast

- group
- linetype
- shape
- size
- weight

Learn more about setting these aesthetics in vignette("ggplot2-specs").

Examples

library(ggplot2)
library(ggrastr)

yvalues = rt(1000, df=3)
xvalues = as.factor(1:1000 %% 2)

ggplot() + geom_boxplot_jitter(aes(y=yvalues, x=xvalues), outlier.jitter.width = 0.1, raster = TRUE)

This geom is similar to geom_jitter, but creates a raster layer.

Description

This geom is similar to geom_jitter, but creates a raster layer.

Usage

gem_jitter_rast(..., raster.dpi = 300, dev = "cairo")

Arguments

... Other arguments passed on to layer(). These are often aesthetics, used to set an aesthetic to a fixed value, like colour = "red" or size = 3. They may also be parameters to the paired geom/stat.

raster.dpi An integer of length one setting the desired resolution in dots per inch. (default=NULL)

dev A character specifying a device. Can be one of: "cairo", "ragg" or "ragg_png". (default="cairo")

Value

geom_point_rast plot with rasterized layer
Aesthetics

geom_point() understands the following aesthetics (required aesthetics are in bold):

• x
• y
• alpha
• colour
• fill
• group
• shape
• size
• stroke

Learn more about setting these aesthetics in vignette("ggplot2-specs").

Examples

library(ggplot2)
library(ggrastr)

ggplot(mpg) + geom_jitter_rast(aes(x = factor(cyl), y = hwy), raster.dpi = 600)

geom_point_rast

This geom is similar to geom_point, but creates a raster layer

Description

This geom is similar to geom_point, but creates a raster layer

Usage

geom_point_rast(..., raster.dpi = 300, dev = "cairo")

Arguments

... Other arguments passed on to layer(). These are often aesthetics, used to set an aesthetic to a fixed value, like colour = "red" or size = 3. They may also be parameters to the paired geom/stat.

raster.dpi An integer of length one setting the desired resolution in dots per inch. (default=NULL)

dev A character specifying a device. Can be one of: "cairo", "ragg" or "ragg_png". (default="cairo")
**geom_quasirandom_rast**

**Value**

geometric point plot with rasterized layer

**Aesthetics**

`geom_point()` understands the following aesthetics (required aesthetics are in bold):

- x
- y
- alpha
- colour
- fill
- group
- shape
- size
- stroke

Learn more about setting these aesthetics in vignette("ggplot2-specs").

**Examples**

```r
library(ggplot2)
library(ggrastr)

ggplot() + geom_point_rast(aes(x=rnorm(1000), y=rnorm(1000)), raster.dpi=600)
```

---

**geom_quasirandom_rast**  *This geom is similar to geom_quasirandom, but creates a raster layer*

**Description**

This geom is similar to `geom_quasirandom`, but creates a raster layer.

**Usage**

```r
geom_quasirandom_rast(
  ..., 
  width = NULL, 
  varwidth = FALSE, 
  bandwidth = 0.5, 
  nbins = NULL, 
  method = "quasirandom", 
  groupOnX = NULL, 
  dodge.width = 0, 
  raster.dpi = 300, 
  dev = "cairo"
)
```
Arguments

... Other arguments passed on to layer(). These are often aesthetics, used to set an aesthetic to a fixed value, like colour = "red" or size = 3. They may also be parameters to the paired geom/stat.

- **width** the maximum amount of spread (default: 0.4)
- **varwidth** vary the width by the relative size of each group
- **bandwidth** the bandwidth adjustment to use when calculating density. Smaller numbers (< 1) produce a tighter "fit". (default: 0.5)
- **nbins** the number of bins used when calculating density (has little effect with quasirandom/random distribution)
- **method** the method used for distributing points (quasirandom, pseudorandom, smiley or frown)
- **groupOnX** if TRUE then jitter is added to the x axis and if FALSE jitter is added to the y axis. Prior to v0.6.0, the default NULL causes the function to guess which axis is the categorical one based on the number of unique entries in each. This could result in unexpected results when the x variable has few unique values and so in v0.6.0 the default was changed to always jitter on the x axis unless groupOnX=FALSE. Also consider coord_flip.
- **dodge.width** Amount by which points from different aesthetic groups will be dodged. This requires that one of the aesthetics is a factor.
- **raster.dpi** An integer of length one setting the desired resolution in dots per inch. (default=Null)
- **dev** A character specifying a device. Can be one of: "cairo", "ragg" or "ragg_png". (default="cairo")

Value

gem_quasirandom plot with rasterized layer

Aesthetics

geom_point() understands the following aesthetics (required aesthetics are in bold):

- x
- y
- alpha
- colour
- fill
- group
- shape
- size
- stroke

Learn more about setting these aesthetics in vignette("ggplot2-specs").
**geom_tile_rast**

**Examples**

```r
library(ggplot2)
library(ggrastr)

ggplot(mtcars) + geom_quasirandom_rast(aes(x = factor(cyl), y = mpg), raster.dpi = 600)
```

---

**geom_tile_rast**

*This geom is similar to geom_tile, but creates a raster layer*

**Description**

This geom is similar to `geom_tile`, but creates a raster layer.

**Usage**

```r
geom_tile_rast(..., raster.dpi = 300, dev = "cairo")
```

**Arguments**

- `...` Other arguments passed on to `layer()`. These are often aesthetics, used to set an aesthetic to a fixed value, like `colour = "red"` or `size = 3`. They may also be parameters to the paired geom/stat.
- `raster.dpi` An integer of length one setting the desired resolution in dots per inch. (default=NULL)
- `dev` A character specifying a device. Can be one of: "cairo", "ragg" or "ragg_png". (default="cairo")

**Value**

`geom_tile` plot with rasterized layer

**Aesthetics**

`geom_tile()` understands the following aesthetics (required aesthetics are in bold):

- `x`
- `y`
- `alpha`
- `colour`
- `fill`
- `group`
- `height`
- `linetype`
- `size`
- `width`

Learn more about setting these aesthetics in vignette("ggplot2-specs").
Examples

```r
library(ggplot2)
library(ggrastr)

coords <- expand.grid(1:100, 1:100)
coords$Value <- 1 / apply(as.matrix(coords), 1, function(x) sum((x - c(50, 50))^2)^0.01)
ggplot(coords) + geom_tile_rast(aes(x=Var1, y=Var2, fill=Value))
```

**geom_violin_rast**  
*This geom is similar to geom_violin, but creates a raster layer*

Description

This geom is similar to geom_violin, but creates a raster layer

Usage

```r
geom_violin_rast(..., raster.dpi = 300, dev = "cairo")
```

Arguments

- `...`  
  Other arguments passed on to `layer()`. These are often aesthetics, used to set an aesthetic to a fixed value, like `colour = "red"` or `size = 3`. They may also be parameters to the paired geom/stat.

- `raster.dpi`  
  An integer of length one setting the desired resolution in dots per inch. (default=NULL)

- `dev`  
  A character specifying a device. Can be one of: "cairo", "ragg" or "ragg_png". (default="cairo")

Value

geom_violin_rast plot with rasterized layer

Aesthetics

`geom_violin()` understands the following aesthetics (required aesthetics are in bold):

- `x`
- `y`
- `alpha`
- `colour`
- `fill`
- `group`
- `linetype`
• size
• weight

Learn more about setting these aesthetics in vignette("ggplot2-specs").

Examples

library(ggplot2)
library(ggrastr)

ggplot(mpg) + geom_violin_rast(aes(x = factor(cyl), y = hwy), raster.dpi = 600)

rasterise

Rasterise ggplot layers Takes a ggplot layer as input and renders their graphical output as a raster.

Description

Rasterise ggplot layers Takes a ggplot layer as input and renders their graphical output as a raster.

Usage

rasterise(layer, dpi = NULL, dev = "cairo")
rasterize(layer, dpi = NULL, dev = "cairo")

Arguments

layer A Layer object, typically constructed with a call to a geom_() or stat_() function.
dpi An integer of length one setting the desired resolution in dots per inch. (default=NULL)
dev A character specifying a device. Can be one of: "cairo", "ragg" or "ragg_png". (default="cairo")

Value

A modified Layer object.

Author(s)

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Examples

```r
require(ggplot2)
# `rasterise()` is used to wrap layers
ggplot(pressure, aes(temperature, pressure)) +
  rasterise(geom_line())

# The `dpi` argument controls resolution
ggplot(faithful, aes(eruptions, waiting)) +
  rasterise(geom_point(), dpi = 5)

# The `dev` argument offers a few options for devices
require(ragg)
ggplot(diamonds, aes(carat, depth, z = price)) +
  rasterise(stat_summary_hex(), dev = "ragg")
```

**theme_pdf**

<table>
<thead>
<tr>
<th>Pretty theme</th>
</tr>
</thead>
</table>

Description

Pretty theme

Usage

```r
theme_pdf(show.ticks = TRUE, legend.pos = NULL)
```

Arguments

- `show.ticks` Show x- and y-ticks.
- `legend.pos` Vector with x and y position of the legend.

Value

ggplot2 with plot ticks and positioned legend

Examples

```r
library(ggplot2)
library(ggrastr)

data = rnorm(100)
colors = (1:100/100)
ggplot() + geom_point(aes(x=data, y=data, color=colors)) + theme_pdf(FALSE, legend.pos=c(1, 1))
```
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