

Package ‘nima’

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Title Nima Hejazi's R Toolbox

Version 0.5.0

Description Miscellaneous R functions developed over the course of statistical research and scientific computing. These include, for example, utilities that supplement existing idiosyncrasies of the R language, extend existing plotting functionality and aesthetics, provide alternative presentations of matrix decompositions, and extend access to command line tools and systems-level information.

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Depends R (>= 3.2.3)

Imports utils, stats, gtools, survival, gridExtra, assertthat,
ProjectTemplate, devtools, ggthemes, ggplot2, scales, plyr,
grid

Suggests knitr, roxygen2, testthat

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URL <https://github.com/nhejazi/nima>

BugReports <https://github.com/nhejazi/nima/issues>

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absmax

Maximum of Absolute Values of Vector

Description

Take the maximum of the absolute values of an input vector.

Usage

```
absmax(x, na.rm = FALSE)
```

Arguments

x	A numeric vector or array.
na.rm	A logical indicating whether missing values should be removed.

Value

The maximum of the absolute values of elements of the input vector.

Examples

```
x <- c(5, 3, -9, -100, 3.14159, 7.5)
absmax(x)
```

attrnames	<i>Get Names of Attributes</i>
-----------	--------------------------------

Description

Get the names of the attributes of an input object.

Usage

```
attrnames(obj)
```

Arguments

obj Any object.

Value

Vector of character strings with the names of the attributes.

Examples

```
x <- matrix(1:100, ncol=5)
colnames(x) <- LETTERS[1:5]
attrnames(x)
```

clear	<i>Clear the Current Screen/Buffer</i>
-------	--

Description

Clear the screen with a call to `system` and `clear`.

Usage

```
clear()
```

Details

This function is merely a call to `system("clear")`

Examples

```
system("clear")
```

`commas`*Add Commas to a Large Number*

Description

Convert a number to a string, with commas inserted at every 3rd digit.

Usage

```
commas(numbers)
```

Arguments

`numbers` Vector of non-negative numbers (will be rounded to integers)

Value

Character string with numbers written like "5,771,009".

Examples

```
commas(c(2300, 9000, 21456, 987654890, 1256787, 345765, 1432))
```

`compFun`*Compare Two Similar Objects including Missing Data Patterns.*

Description

Check whether two objects are the same, including patterns of NAs.

Usage

```
compFun(a, b)
```

Arguments

`a` An object of a given type.
`b` An object similar in type to that given above.

Value

Boolean object with TRUE indicating an element is the same.

Examples

```
x <- c(5, 8, 9, NA, 3, NA)
y <- c(5, 2, 9, 4, NA, NA)
compFun(x,y)

x <- matrix(rnorm(1000), ncol = 20)
x[sample(seq(along = x), 100)] <- NA
all(compFun(x,x))
dim(compFun(x,x))

x <- as.list(c(5, 8, 9, NA, 3, NA))
y <- as.list(y)
sapply(compFun(x,y), function(a) sum(!a))

x <- as.data.frame(x)
y <- as.data.frame(y)
sum(!compFun(x,y))
```

discrete_by_quantile *Discretize a vector*

Description

Discretizes a non-factor input vector and returns the result as numeric.

Usage

```
discrete_by_quantile(x)
```

Arguments

x A vector containing arbitrary data.

Value

A numeric vector with the data re-coded to based on the quantiles.

Examples

```
x <- rnorm(1000)
discrete_by_quantile(x)
```

exit

Exit R Without Saving

Description

Exit R without saving workspace, using the ubiquitous UNIX syntax.

Usage

```
exit()
```

Details

This function is merely a call to `q("no")`.

factornum

Convert a Factor to Numeric

Description

Convert a factor with numeric levels to a non-factor (numeric).

Usage

```
factornum(x)
```

Arguments

`x` A vector containing a factor with numeric levels.

Value

The input factor made into a numeric vector.

Examples

```
x <- factor(c(3, 4, 9, 4, 9), levels = c(3,4,9))
factornum(x)
```

`hweb`*View HTML Version of Help Files*

Description

View the HTML version of a help file while running R from the terminal.

Usage

```
hweb(...)
```

Arguments

```
...           Help topics.
```

Details

Calls function [help](#) using argument `htmlhelp=TRUE`.

See Also

[help](#), [help.start](#)

Examples

```
hweb(read.table)
```

`lmPlots_gg`*Linear Model Diagnostic Plots with ggplot2*

Description

Produce standard diagnostic plots for linear models using `ggplot2`.

Usage

```
lmPlots_gg(model)
```

Arguments

```
model           A linear model object produced by lm().
```

Examples

```
n <- 100; x1 <- rnorm(n); y1 <- rnorm(n);  
linmod <- lm(y1 ~ x1)  
lmPlots_gg(linmod)
```

miss_ind	<i>Add missingness indicators to existing data object</i>
----------	---

Description

Add indicator columns to a data.frame showing the pattern of missingness.

Usage

```
miss_ind(data, prefix = "miss_")
```

Arguments

data	A numeric vector or array.
prefix	A string used to name the indicator variables..

Value

An augmented data.frame with indicators for missingness patterns.

Examples

```
data <- data.frame(cbind(rnorm(10), runif(10)))
data[sample(nrow(data), 3), 1] <- NA
data[sample(nrow(data), 4), 2] <- NA
data <- miss_ind(data)
```

mse	<i>Mean Squared Error (MSE)</i>
-----	---------------------------------

Description

Easily compute the mean squared error for continuous predictions

Usage

```
mse(prediction, outcome)
```

Arguments

prediction	A numeric vector of predictions.
outcome	A numeric vector of outcomes actually observed.

Examples

```
x <- rnorm(100)
y <- x^2
test_x <- rnorm(100)
test_y <- test_x^2
mod <- glm(y ~ x)
pred <- predict(mod, newx = as.data.frame(test_x))
error <- mse(prediction = pred, outcome = test_y)
```

openfile

Open a File

Description

Open a file using `system` and `open`.

Usage

```
openfile(file)
```

Arguments

file File name (as character string).

Details

Open files from R by using the default operating system program.

Examples

```
openfile("myplot.pdf")
```

qqPlot_gg

Quantile-Quantile Plots with ggplot2

Description

Produce standard quantile-quantile plots for modeling using `ggplot2`.

Usage

```
qqPlot_gg(x, distribution = "norm", ..., line.estimate = NULL,
          conf = 0.95, labels = names(x))
```

Arguments

<code>x</code>	A numeric vector of residuals from a generalized linear model.
<code>distribution</code>	The reference probability distribution for residuals.
<code>...</code>	Any additional parameters to be passed to distribution functions.
<code>line.estimate</code>	Should quantiles be estimated, if so which quantiles?
<code>conf</code>	The confidence level to be used with confidence intervals.
<code>labels</code>	The names to be used when identifying points on the Q-Q plot.

Examples

```
n <- 100; x1 <- rnorm(n); y1 <- rnorm(n);
linmod <- lm(y1 ~ x1)
x <- linmod$residuals
qqPlot_gg(x)
```

qrD

*The QR decomposition of a matrix***Description**

Computes the QR decomposition of a matrix.

Usage

```
qrD(x, tol = 1e-07)
```

Arguments

<code>x</code>	A matrix whose QR decomposition is to be computed.
<code>tol</code>	The tolerance for finding linear dependence in columns of <code>x</code> .

Details

Calls function `qr` and returns more understandable output.

Value

A list of two matrices: Q and R.

See Also

[qr](#)

Examples

```
hilbert <- function(n) { i <- 1:n; 1/outer(i-1,i,"+") }
h5 <- hilbert(5);
qrD(h5)
```

scale_color_nima	<i>Nima's ggplot2 theme - supplement: scale_color</i>
------------------	---

Description

Nima's ggplot2 theme scale_color supplement: colors optimized via ColorBrewer

Usage

```
scale_color_nima(...)
```

Arguments

... Passed to [ggplot](#)

scale_fill_nima	<i>Nima's ggplot2 theme - supplement: scale_fill</i>
-----------------	--

Description

Nima's ggplot2 theme scale_fill supplement: colors optimized via ColorBrewer

Usage

```
scale_fill_nima(...)
```

Arguments

... Passed to [ggplot](#)

theme_jetblack	<i>A jet black ggplot2 theme with inverted colors</i>
----------------	---

Description

A jet black ggplot2 theme with inverted colors

Usage

```
theme_jetblack(base_size = 12, base_family = "")
```

Arguments

base_size	Base font size
base_family	Base font family
...	Passed to theme

Value

An object as returned by [theme](#)

See Also

[theme](#)

Examples

```
library(ggplot2)
p <- ggplot(mtcars, aes(y = mpg, x = disp, color = factor(cyl)))
p <- p + geom_point() + theme_jetblack()
p
```

theme_nima

Nima's ggplot2 theme

Description

Nima's ggplot2 theme: white background, colors optimized

Usage

```
theme_nima(base_size = 14, base_family = "Helvetica")

nima_theme(base_size = 14, base_family = "Helvetica")
```

Arguments

base_size	Base font size
base_family	Base font family
...	Passed to theme

Value

An object as returned by [theme](#)

See Also

[theme](#)

Examples

```
library(ggplot2)
p <- ggplot(mtcars, aes(y = mpg, x = disp, color = factor(cyl)))
p <- p + geom_point() + scale_fill_nima() + scale_color_nima() + theme_nima()
p
```

uniqlen	<i>Find Number of Unique Values</i>
---------	-------------------------------------

Description

Get the number of unique values in an input vector.

Usage

```
uniqlen(vec, na.rm = TRUE)
```

Arguments

vec	A vector of any type.
na.rm	If TRUE, remove missing values.

Value

Number of unique values.

Examples

```
x <- c(1, 3, 1, 1, NA, 2, 2, 3, NA, NA, 1, 3, 1)
uniqlen(x)
uniqlen(x, na.rm = FALSE)
```

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