

Package ‘ggsom’

October 13, 2022

Type Package

Title New Data Visualisations for SOMs Networks

Version 0.4.0

Description

The aim of this package is to offer more variability of graphics based on the self-organizing maps.

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LazyData true

Encoding UTF-8

Depends R (>= 3.4.0)

Imports dplyr, magrittr, tidyr, ggplot2, kohonen, assertthat,
data.table, entropy, tibble

Suggests devtools, knitr, rmarkdown

URL <https://github.com/oldlipe/ggsom>

RoxygenNote 7.0.0

Collate 'ggsom.R' 'ggsom_aes.R' 'ggsom_entropy.R' 'ggsom_plot.R'
'ggsom_utils.R' 'zzz.R'

NeedsCompilation no

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| geom_class | <i>Visualization in parallelels coordinates in matrix of each attribute</i> |
|------------|---|

Description

Visualization of the classes corresponding to each neuron of the SOM

Usage

```
geom_class(object_som, class = NULL, x_o = 3, y_o = 5.5, x_e = 3, y_e = 6.3)
```

Arguments

| | |
|------------|--|
| object_som | object of Kohonen package |
| class | categorical vector corresponding to the class of the dataset |
| x_o | x-axis to map the number of observations of each neuron |
| y_o | y-axis to map the number of observations of each neuron |
| x_e | x-axis to map the entropy of each neuron |
| y_e | y-axis to map the entropy of each neuron |

Value

ggplot2 object

Author(s)

Felipe Carvalho, <lipecaso@gmail.com>

References

‘ggplot2’ package (<https://CRAN.R-project.org/package=ggplot2>)

Examples

```
# Creating SOM object
iris_som <- kohonen::som(X = as.matrix(iris[1:4]),
                        grid = kohonen::somgrid(xdim = 5,
                                                ydim = 5,
                                                neighbourhood.fct = "gaussian",
                                                topo = "rectangular"),
                        rlen = 100)

# Creating ggsom class plot
geom_class(iris_som, class = iris$Species,
           x_o = 1, y_o = 6,
           x_e = 1.1, y_e = 7.4)
```

| | |
|-------|--------------|
| ggsom | <i>ggsom</i> |
|-------|--------------|

Description

The aim of this package is to offer more variability of graphics based on the self-organizing maps

| | |
|-----------|--|
| ggsom_aes | <i>kohonen package object modeling</i> |
|-----------|--|

Description

Function to map each SOM neuron with its corresponding class

Usage

```
ggsom_aes(object_som, class)
```

Arguments

| | |
|------------|--|
| object_som | object of kohonen package |
| class | categorical vector corresponding to the class of the dataset |

Value

data.table model used in visualizations

Author(s)

Felipe Carvalho, <lipecaso@gmail.com>

References

'Kohonen' package (<https://CRAN.R-project.org/package=kohonen>)

ggsom_entropy

Function to obtain the purity of each neuron in the SOM network

Description

Entropy calculation using the maximum likelihood method

Usage

```
ggsom_entropy(ggsom_aes)
```

Arguments

ggsom_aes kohonen package object modeling

Value

Data set with the purity attribute added in Tibble

Author(s)

Felipe Carvalho, <felipe.carvalho@inpe.br>

is.kohonen

verifies that the object inherits kohonen object

Description

if object inherits kohonen class return TRUE otherwise FALSE

Usage

```
is.kohonen(object_som)
```

Arguments

object_som object of Kohonen package

Value

Boolean value

Author(s)

Felipe Carvalho, <lipecaso@gmail.com>

References

‘Kohonen’ package (<https://CRAN.R-project.org/package=kohonen>)

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