Package: SpICE (via r-universe)

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Title An interpretable method based on ICE curves for spatial data

Version 0.0.0.9000

Description SpICE: An interpretable machine learning approache using ICE curves for spatial data. Compute ICE curves clusters with geographical constrains and visualization.

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

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Contents

cl_sobcurve — *Cluster ICE curves, transforming the ICE curves first and use for the clusters geographical information*

Description

Cluster ICE curves, transforming the ICE curves first and use for the clusters geographical information

Usage

```
cl_sobcurve(DD0, DD1, alp = 0.5, yhat = NULL, grid, icevalue)
```

Arguments

DD0	data.frame with ICE curve information.
DD1	data.frame with coordinate information asociated to ice curves values named lat and long.
alp	numeric value between 0 and 1 which represents the weight fo D0 (ICE curve information) respect to location value.
yhat	Name of each ice curve id.
grid	Name of the grid value variable.
icevalue	Name of ice curve variable.

Value

data.frame

Examples

```
## Not run:
cl_sobcurve(DD0 = curveDT, DD1 = coordDT, yhat = yhat.id, grid = grid.val, ice = ice)

## End(Not run)
```

coordDT — *Data with location information asociated to ice curves values*

Description

data.frame with 1000 rows and five columns

- long Group id
- lat refractive index
- grlab Grid id
- yhat.id Ice curve values

Usage

```
data(coordDT)
```

Format

A data frame with 214 rows and 10 variables

---

curveDT *Data with ICE curve information*

Description

data.frame with 1000 rows and five columns

- grlab Group id
- yhat.id ice curve id
- grid.point Grid id
- ice Ice curve values
- gridval Grid value

Usage

```
data(curveDT)
```

Format

A data frame with 214 rows and 10 variables

---

plot_alpha *Function to compute and visualize optimum alpha cluster values*

Description

Function to compute and visualize optimum alpha cluster values

Usage

```
plot_alpha(
  DD1,
  DD0,
  resp = NULL,
  nfrac = 0.2,
  yhat,
  icevalue,
  grid,
  clRange = 3:5,
  alpRange = seq(0, 1, 0.2)
)
```

Arguments

DD1	data.frame with coordinate information asociated to ice curves values named lat and long.
DD0	data.frame with ICE curve information.
resp	response vector to perform stratified sample
nfrac	sampling fraction
yhat	Name of each ice curve id
icevalue	Name of ice curve variable.
grid	Name of the grid value variable.
clRange	Numeric vector with posible values of number of cluster.
alpRange	Numeric vector with posible values of alpha parameter.

Value

A list with cluster metric for each value of alpRange and clRange, and a visualization of the intertia decomposition.

Examples

```
## Not run:
plot_alpha( DD0 = curveDT, DD1 = coordDT, yhat = yhat.id, icevalue = ice, grid = grid.val)

## End(Not run)
```

---

plot_clcoord *Plot map including geographical location of observations colored by groups using ggmap*

Description

Plot map including geographical location of observations colored by groups using ggmap

Usage

```
plot_clcoord(
  data = NULL,
  gg,
  gr = NULL,
  sz = 0.5,
  aa = 0.7,
  fct = TRUE,
  zz = 13,
  long,
  lat,
  region = NULL
)
```

Arguments

data	data.frame with the data to be ploted having the variables longitude and latitude, named long and lat
gg	name of the group id variable.
gr	vector with the selected groups to be ploted.
sz	line widht in the plot.
aa	numeric value for transparency in the plot.
fct	logical value to inicate facets in the plot.
zz	a zoom level for map
long	variable name with the longitude data.
lat	variable name with latitude data.
region	a bounding box in the format c(lowerleftlon, lowerleftlat, upperrightlon, upperrightlat), see example

Value

A ggplot2 object.

Examples

```
## Not run:
montevideo <- c(left = -56.286532, bottom = -34.95, right = -56.004532, top =-34.801112 )
plot_clcoord(data = coordDT, gg = grlab, gr = 1:4, region = montevideo)

## End(Not run)
```

---

plot_clcurve *Plot clustered ICE curves using ggplot2*

Description

Plot clustered ICE curves using ggplot2

Usage

```
plot_clcurve(
  data = NULL,
  icevalue = NULL,
  gg,
  yhat,
  gr = NULL,
  sz = 0.5,
  aa = 1/100,
  xlab = NULL,
```

```
  ylab = NULL,
  fct = TRUE,
  xvalue = NULL
)
```

Arguments

data	data.frame with the data to be ploted
icevalue	Name of ice curve variable.
gg	Name of the group id variable.
yhat	Name of each ice curve id.
gr	vector with the selected groups to be ploted.
sz	line widht in the plot.
aa	numeric value for transparency in the plot.
xlab	string with x axis label.
ylab	string with y axis label.
fct	logical value to inicate facets in the plot.
xvalue	variable name with grid values ploted in x axis.

Value

A ggplot2 object

Examples

```
## Not run:
plot_clcurve(data = curveDT, icevalue = ice, gg = grlab, yhat = yhat.id,
gr = 1:4, xvalue = grid.val, aa =1/20)

## End(Not run)
```

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