

Package ‘tradeoffaucdim’

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Type Package

Title Plotting Trade-Off AUC-Dimensionality

Version 0.1.0

Depends SuperLearner, R (≥ 3.5)

Description Perform and Runtime statistical comparisons between models.
This package aims at choosing the best model for a particular dataset,
regarding its discriminant power and runtime.

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Encoding UTF-8

LazyData true

Suggests spelling, testthat ($\geq 3.0.0$)

Config/testthat/edition 3

RoxygenNote 7.3.2

Imports dplyr, speedglm, magrittr, purrr, rsample, stringr, tibble,
tidyr, ROCR, caret, ez, fastDummies, fuzzySim, ggplot2

URL <https://github.com/luisgarcez11/tradeoffaucdim>

BugReports <https://github.com/luisgarcez11/tradeoffaucdim/issues>

Language en-US

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apply_model	<i>Apply Model</i>
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Description

Apply model and create column with fit

Usage

```
apply_model(  
  obj,  
  models = c("SL.glm", "SL.rpart"),  
  test_partition_prop = 0.2,  
  perf_measure = "auc"  
)
```

Arguments

- obj object returned from define_indepvars_outcome
- models models to be analyzed
- test_partition_prop test proportion
- perf_measure performance measure

Value

list with fit models and parameters

Examples

```
apply_model(obj2)
```

bananaquality	<i>Banana Quality</i>
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Description

Banana quality dataset

Usage

```
bananaquality
```

Format

An object of class `data.frame` with 8000 rows and 8 columns.

bananaquality_sample	<i>Banana Quality Subset</i>
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Description

Banana quality dataset subset

Usage

```
bananaquality_sample
```

Format

An object of class `data.frame` with 50 rows and 8 columns.

bootstrap_data	<i>Bootstrap data</i>
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Description

Create a list with bootstrap samples

Usage

```
bootstrap_data(  
  data,  
  outcome = "Quality",  
  indep_vars = c("Size", "Weight", "Sweetness", "Softness", "HarvestTime", "Ripeness",  
    "Acidity"),  
  n_samples = 50,  
  n_maximum_dim = 5  
)
```

Arguments

data	a dataframe to be analyzed
outcome	a string representing the outcome variable
indep_vars	a vector of strings to be considered
n_samples	number of bootstrap samples
n_maximum_dim	maximum number of variables to be considered

Value

list

Examples

```
bootstrap_data(bananaquality_sample)
```

compare_test	<i>Compare test</i>
--------------	---------------------

Description

Performs statistical tests to compare performance and runtime.

Usage

```
compare_test(obj, x_label_offset = 1, y_label_offset = 10)
```

Arguments

obj	object returned by plot_curve
x_label_offset	x coordinate to plot p-value
y_label_offset	y coordinate to plot p-value

Value

list with statistical tests performed

Examples

```
compare_test(obj5)
```

define_indepvars	<i>Define independent variables</i>
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Description

Define independent variables to be tested

Usage

```
define_indepvars(obj, p_in = 0.5, p_out = 0.6)
```

Arguments

obj	object returned by bootstrap_data
p_in	entry p-value used to determine variable order
p_out	removal p-value used to determine variable order

Value

list

Examples

```
define_indepvars(obj1)
```

obj1	<i>Example Object returned from bootstrap_data</i>
------	--

Description

obj1

Usage

```
obj1
```

Format

An object of class list of length 5.

obj2	<i>Example Object returned from define_indepvars_outcome</i>
------	--

Description

obj2

Usage

obj2

Format

An object of class list of length 7.

obj3	<i>Example Object returned from apply_model</i>
------	---

Description

obj3

Usage

obj3

Format

An object of class list of length 10.

obj4	<i>Example Object returned from summary_statistics</i>
------	--

Description

obj4

Usage

obj4

Format

An object of class list of length 11.

obj5	<i>Example Object returned from plot_curve</i>
------	--

Description

obj5

Usage

obj5

Format

An object of class list of length 15.

obj6	<i>Example Object returned from compare_test</i>
------	--

Description

obj6

Usage

obj6

Format

An object of class list of length 16.

plot_curve	<i>Plot curve</i>
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Description

Return plot features.

Usage

plot_curve(obj)

Arguments

obj object returned by summary_statistics

Value

list with graphical features

Examples

plot_curve(obj4)

summary_stats	<i>Summary Stats</i>
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Description

Return summary statistics

Usage

summary_stats(obj)

Arguments

obj object returned from apply_model

Value

list with summary statistics and bootstrap confidence intervals

Examples

summary_stats(obj3)

wrapper_aucdim	<i>Wrap all pipeline</i>
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Description

Wrap all pipeline

Usage

```
wrapper_aucdim(  
  data,  
  outcome,  
  indep_vars,  
  n_samples = 100,  
  n_maximum_dim = 5,  
  p_in = 0.5,  
  p_out = 0.6,  
  models = c("SL.glm"),  
  test_partition_prop = 0.2,  
  perf_measure = "auc",  
  x_label_offset = 1,  
  y_label_offset = 10  
)
```

Arguments

data	a dataframe to be analyzed
outcome	a string representing the outcome variable
indep_vars	a vector of strings to be considered
n_samples	number of bootstrap samples
n_maximum_dim	maximum number of variables
p_in	entry p-value for choosing variable order
p_out	exclusion p-value for choosing variable order
models	a string representing the models to compare
test_partition_prop	test partition proportion
perf_measure	performance measure to be considered
x_label_offset	x coordinate for plotting
y_label_offset	y coordinate for plotting

Value

a list with the final object

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