

# Package ‘tradeoffaucdim’

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**Type** Package

**Title** Plotting Trade-Off AUC-Dimensionality

**Version** 0.2.0

**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 (>= 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

**NeedsCompilation** no

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**Repository** CRAN

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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)
```

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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.

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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.

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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>
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**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)
```

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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)
```

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

**Description**

obj1

**Usage**

```
obj1
```

**Format**

An object of class list of length 5.

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obj2                      *Example Object returned from define\_indepvars\_outcome*

---

**Description**

obj2

**Usage**

obj2

**Format**

An object of class list of length 7.

---

obj3                      *Example Object returned from apply\_model*

---

**Description**

obj3

**Usage**

obj3

**Format**

An object of class list of length 10.

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obj4                      *Example Object returned from summary\_statistics*

---

**Description**

obj4

**Usage**

obj4

**Format**

An object of class list of length 11.

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obj5	<i>Example Object returned from plot_curve</i>
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**Description**

obj5

**Usage**

obj5

**Format**

An object of class list of length 15.

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obj6	<i>Example Object returned from compare_test</i>
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**Description**

obj6

**Usage**

obj6

**Format**

An object of class list of length 16.

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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)
```

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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)
```

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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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