

Package ‘sappviz’

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Title Sector-Adjusted Points Plot for Feature Dominance

Version 1.0.16

Description Visualizes feature influence by projecting data into 2D via PCA and adjusting points toward sector centers weighted by importances. Supports linear models and optionally tree-based models via SHAP values from the 'fastshap' package. For tree-based models, please install 'fastshap' manually from the CRAN archive:
<<https://cran.r-project.org/src/contrib/Archive/fastshap/>>.

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URL <<https://github.com/FaresAminu/sappviz>>

BugReports <https://github.com/FaresAminu/sappviz/issues>

Imports ggplot2 (>= 3.4.0), ggrepel (>= 0.9.0), stats

Suggests testthat (>= 3.0.0), knitr, rmarkdown, randomForest, MASS, fastshap

Encoding UTF-8

RoxygenNote 7.3.3

VignetteBuilder knitr

Config/testthat/edition 3

NeedsCompilation no

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Contents

adjust_points	2
influence_feature	2
plot_sapp	3
sector_centers	4

Index	5
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adjust_points	<i>Adjust PCA coordinates toward sector centers</i>
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Description

Adjust PCA coordinates toward sector centers

Usage

```
adjust_points(coords, centers, influence, alpha = 0.6)
```

Arguments

coords	A matrix or data.frame with columns x, y (PCA scores).
centers	Matrix of sector centers (from sector_centers).
influence	A factor or integer vector of length nrow(coords), indicating the sector index/name for each point.
alpha	Blending parameter in [0,1]. 0 = no adjustment, 1 = full pull.

Value

A matrix of adjusted coordinates.

Examples

```
coords <- matrix(c(0.5, -0.3, -0.1, 0.8), ncol = 2)
centers <- matrix(c(1, 0, -1, 0), ncol = 2, byrow = TRUE)
rownames(centers) <- c("A", "B")
influence <- c("A", "B")
adjust_points(coords, centers, influence, alpha = 0.6)
```

influence_feature	<i>Compute the most influential feature per observation (Model-Agnostic)</i>
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Description

Compute the most influential feature per observation (Model-Agnostic)

Usage

```
influence_feature(data, model, scale_data = TRUE)
```

Arguments

data	Data frame of features.
model	A fitted model (lm, glm, randomForest, ranger).
scale_data	Boolean. If TRUE, scales data for lm to match PCA (default: TRUE).

Value

A character vector of feature names (most influential per row).

Examples

```
data(iris)
X <- iris[, 1:4]
model <- lm(Petal.Width ~ Sepal.Length + Sepal.Width + Petal.Length, data = iris)
influence_feature(X, model)
```

plot_sapp

SAPP: Professional Enhanced Visualization

Description

SAPP: Professional Enhanced Visualization

Usage

```
plot_sapp(data, importances, influence, alpha = 0.6, scale_coords = TRUE, ...)
```

Arguments

data	Data frame of original features (numeric).
importances	Named numeric vector of feature importances.
influence	Vector of length nrow(data) indicating the MOST influential feature.
alpha	Adjustment strength. Numeric (0-1) OR "auto".
scale_coords	Whether to scale PCA coordinates to unit disk (default TRUE).
...	Additional arguments passed to ggplot2::geom_point.

Value

A ggplot object.

Examples

```
library(sappviz)
data(iris)
X <- iris[, 1:4]
model <- lm(Petal.Width ~ Sepal.Length + Sepal.Width + Petal.Length, data = iris)
imp <- abs(coef(model)[-1])
names(imp) <- c("Sepal.Length", "Sepal.Width", "Petal.Length")
inf <- influence_feature(X, model)
plot_sapp(X, imp, inf, alpha = "auto")
```

sector_centers

*Compute sector centers based on feature importances***Description**

Compute sector centers based on feature importances

Usage

```
sector_centers(importances, radius = 1)
```

Arguments

importances	A named numeric vector of feature importances (positive).
radius	Radius of the circle on which centers are placed (default 1).

Value

A matrix with columns x and y for each feature.

Examples

```
imp <- c(Sepal.Length = 0.4, Sepal.Width = 0.1, Petal.Length = 0.35, Petal.Width = 0.15)
sector_centers(imp)
```

Index

`adjust_points`, [2](#)

`influence_feature`, [2](#)

`plot_sapp`, [3](#)

`sector_centers`, [4](#)