Package 'lvimp'

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Type Package

Title Perform Inference on Summaries of Longitudinal Algorithm-Agnostic Variable Importance

Version 1.0.0

Description Calculate point estimates of and valid confidence intervals for longitudinal summaries of nonparametric, algorithm-agnostic variable importance measures. For more details, see Williamson et al. (2024) <doi:10.48550/arXiv.2311.01638>.

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Imports vimp

Suggests knitr, rmarkdown, testthat, SuperLearner

URL https://bdwilliamson.github.io/lvimp/

BugReports https://github.com/bdwilliamson/lvimp/issues

VignetteBuilder knitr

RoxygenNote 7.3.2

Encoding UTF-8

NeedsCompilation no

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Repository CRAN

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Contents

format.lvim *Format a* lvim *object*

Description

Format a lvim object

Usage

```
## S3 method for class 'lvim'
format(x, digits = 3, ...)
```

Arguments

x	the lvim object of interest
digits	the number of digits to format to
...	other options, see the generic format function

Value

A formatted lvim object for printing.

lvim *Create a Longitudinal Variable Importance Object*

Description

Create a longitudinal variable importance object from several constituent cross-sectional variable importance objects.

Usage

```
lvim(vim_list = list(), timepoints = numeric())
```

Arguments

vim_list	a list of individual, cross-sectional variable importance objects. Assumed to be in order over time.
timepoints	a numeric vector of timepoints of interest

Value

an object of class lvim

lvim_autc *Area Under the Variable Importance Trajectory*

Description

Compute a nonparametric estimate of (and efficient influence function for) the area under the longitudinal variable importance trajectory (AUTC) over a contiguous subset of the time series.

Usage

```
lvim_autc(
  lvim,
  indices = 1:length(lvim),
  interpolator = "linear",
  delta = 0,
  ...
)
```

Arguments

lvim	an object of class lvim containing the cross-sectional variable importance objects
indices	a numeric vector indicating the contiguous subset of the time series
interpolator	a string indicating the type of interpolator used to take the area under the trajectory
delta	null hypothesis value
...	other arguments to be passed to the interpolator function

Value

The lvim object, with point estimates, CIs, and p-values related to the area under the trend in variable importance filled in.

lvim_average *Average Longitudinal Variable Importance*

Description

Compute a nonparametric estimate of (and efficient influence function for) the average longitudinal variable importance over a contiguous subset of the time series.

Usage

```
lvim_average(lvim, indices = 1:length(lvim), delta = 0)
```

Arguments

`lvim`	an object of class `lvim` containing the cross-sectional variable importance objects
`indices`	a numeric vector indicating the contiguous subset of the time series
`delta`	null hypothesis value

Value

The `lvim` object, with point estimates, CIs, and p-values related to the average variable importance filled in.

`lvim_trend` *Linear Trend in the Longitudinal Variable Importance Trajectory*

Description

Compute a nonparametric estimate of (and efficient influence function for) the linear trend in the longitudinal variable importance over a contiguous subset of the time series.

Usage

```
lvim_trend(lvim, indices = 1:length(lvim), delta = 0)
```

Arguments

`lvim`	an object of class `lvim` containing the cross-sectional variable importance objects
`indices`	a numeric vector indicating the contiguous subset of the time series
`delta`	null hypothesis value

Value

The `lvim` object, with point estimates, CIs, and p-values related to the linear trend in variable importance filled in.

print.lvim *Print a* lvim *object*

Description

Print a lvim object

Usage

```
## S3 method for class 'lvim'
print(x, ...)
```

Arguments

x	the lvim object of interest
...	other options, see the generic print function

Value

No return value, called for side effects.

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