Package 'autogam'

May 7, 2026

Title Automate the Creation of Generalized Additive Models (GAMs)

Version 0.1.0

Language en-US

Description This wrapper package for 'mgcv' makes it easier to create high-performing Generalized Additive Models (GAMs). With its central function autogam(), by entering just a dataset and the name of the outcome column as inputs, 'AutoGAM' tries to automate the procedure of configuring a highly accurate GAM which performs at reasonably high speed, even for large datasets.

License MIT + file LICENSE

Config/testthat/edition 3

Encoding UTF-8

RoxygenNote 7.3.2

Depends R (>= 4.2.0)

Imports cli, dplyr, methods, mgcv, purrr, rlang, staccuracy, stats, stringr, univariateML

Suggests testthat (>= 3.0.0)

URL https://github.com/tripartio/autogam, https://tripartio.github.io/autogam/

BugReports https://github.com/tripartio/autogam/issues

NeedsCompilation no

Author Chitu Okoli [aut, cre] (ORCID: <https://orcid.org/0000-0001-5574-7572>)

Maintainer Chitu Okoli <Chitu.Okoli@skema.edu>

Repository CRAN

Date/Publication 2025-02-24 19:20:06 UTC

Contents

`autogam` *Automate the creation of a Generalized Additive Model (GAM)*

Description

`autogam()` is a wrapper for 'mgcv::gam()' that makes it easier to create high-performing Generalized Additive Models (GAMs). By entering just a dataset and the name of the outcome column as inputs, `autogam()` tries to automate the procedure of configuring a highly accurate GAM which performs at reasonably high speed, even for large datasets.

Usage

```
autogam(data, y_col, ..., bs = "cr")
```

Arguments

`data`	dataframe. All the variables in `data` will be used to predict `y_col`. To exclude any variables, assign as `data` only the subset of variables desired.
`y_col`	character(1). Name of the y outcome variable.
`...`	Arguments passed on to `mgcv::gam()`.
`bs`	character(1). The default basis function for GAM smooths. See `?mgcv::smooth.terms` for details. Whereas the default `bs` in `mgcv` is 'tp', `autogam`'s default is 'cr', which is much faster and comparably accurate.

Value

Returns an `mgcv::gam` object, the result of predicting `y_col` from all other variables in `data`.

Examples

```
autogam(mtcars, 'mpg')
```

`autogam generic methods` *Generic autogam methods passed on to mgcv::gam methods*

Description

An `autogam` object contains a `gam` element that is simply an `mgcv::gam` object. So, it supports all `mgcv::gam` methods by, in most cases, simply passing the `gam` element on to their corresponding `mgcv::gam` methods. Only the following methods have special specifications for autogam (see their dedicated documentation files for details): `print.autogam()`.

Usage

```
## S3 method for class 'autogam'
anova(object, ...)

## S3 method for class 'autogam'
coef(object, ...)

## S3 method for class 'autogam'
cooks.distance(model, ...)

## S3 method for class 'autogam'
formula(x, ...)

## S3 method for class 'autogam'
influence(model, ...)

## S3 method for class 'autogam'
logLik(object, ...)

## S3 method for class 'autogam'
model.matrix(object, ...)

## S3 method for class 'autogam'
predict(object, ...)

## S3 method for class 'autogam'
residuals(object, ...)

## S3 method for class 'autogam'
vcov(object, ...)
```

Arguments

`object, model`	An object of class `autogam`.
`...`	other arguments

x	formula

Value

Returns the return object of the corresponding `mgcv::gam` method.

`plot.autogam` *Plot Method for autogam Objects*

Description

This function plots an `autogam` object. It calls the `mgcv::gam` object `mgcv::plot.gam()` method.

Usage

```
## S3 method for class 'autogam'
plot(x, ...)
```

Arguments

x	An object of class `autogam`.
...	Additional arguments passed to other methods.

Value

Same return object as `mgcv::print.gam()`.

`print.autogam` *Print Method for autogam Objects*

Description

This function prints an `autogam` object. It calls the `mgcv::gam` object `print()` method and then adds basic performance metrics from the `autogam` object:

- For models that predict numeric outcomes, it prints "MAE", the mean absolute error, and "Std. accuracy", the standardized accuracy (staccuracy) of the winsorized MAE relative to the mean absolute deviation.
- For models that predict binary outcomes, it prints "AUC", the area under the ROC curve.

Usage

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

Arguments

x	An object of class autogam.
...	Additional arguments passed to other methods.

Value

Invisibly returns the input object x.

---

smooth_formula_string *Create a character string for a mgcv::gam formula*

Description

Create a character string that wraps appropriate variables in a dataframe with s() smooth functions. Based on the datatype of each variable, it determines whether it is a numeric variable to be smoothed:

- Non-numeric: no smoothing.
- Numeric: determine knots based on the number of unique values for that variable:
  - <= 4: no smoothing
  - 5 to 19 (inclusive): smooth function with knots equal to the floored half of the number of unique values. E.g., 6 unique values receive 3 knots, 7 will receive 3 knots, and 8 will receive 4 knots.
  - >= 20: smooth function with no specified number of knots, allowing the gam() function to detect the appropriate number.

Usage

```
smooth_formula_string(
  data,
  y_col,
  smooth_fun = "s",
  bs = "cr",
  expand_parametric = TRUE
)
```

Arguments

data	dataframe. All the variables in data except y_col will be listed in the resulting formula string. To exclude any variables, assign as data only the subset of variables desired.
y_col	character(1). Name of the y outcome variable.
smooth_fun	character(1). Function to use for smooth wraps; default is 's' for the s() function.
bs	See documentation for autogam()
expand_parametric	logical(1). If TRUE (default), explicitly list each non-smooth (parametric) term. If FALSE, use . to lump together all non-smooth terms.

Value

Returns a single character string that represents a formula with `y_col` on the left and all other variables in `data` on the right, each formatted with an appropriate `s()` function when applicable.

Examples

```
smooth_formula_string(mtcars, 'mpg')
```

`summary.autogam` *Summary Method for autogam Objects*

Description

This function returns a summary of an `autogam` object. It calls the `mgcv::gam` object `mgcv::summary.gam()` method.

Usage

```
## S3 method for class 'autogam'
summary(object, ...)
```

Arguments

`object`	An object of class `autogam`.
`...`	Additional arguments passed to other methods.

Value

Same return object as `mgcv::summary.gam()`.

Index