Package ‘mslasso’

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Type Package

Title Monotone Splines Lasso

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Author Linn Cecilie Bergersen

Maintainer <linncb@math.uio.no>

Description Functions to fit the monotone splines lasso and adaptive monotone splines lasso.

License GPL (>=2)

Depends scoop

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mslasso-package  Monotone splines lasso

Description

Procedures for fitting the monotone splines lasso and the adaptive monotone splines lasso in additive models.

Details

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Author(s)

Linn Cecilie Bergersen Maintainer: Linn Cecilie Bergersen <linncb@math.uio.no>

References

Linn Cecilie Bergersen, Kukatharmini Tharmaratnam, Ingrid K. Glad, Monotone splines lasso, Computational Statistics & Data Analysis, Available online 29 March 2014, ISSN 0167-9473.


adaptive.monotone  

Function to fit the adaptive monotone splines lasso.

Usage

adaptive.monotone(Xf, Yf, familyf, num.knotsf, w)

Arguments

Xf  Covariate matrix
Yf  Response variable.
familyf  Specification for the model link functions. Only "gaussian" is supported.
num.knotsf  Number of knots in spline representation.
w  NULL if method = "monotone.lasso", vector of weights if method is "adaptive.monotone"

Details

For the adaptive monotone splines lasso w should be a vector of weights computed according to Bergersen et. al (2014).

Value

Returns adaptive monotone splines lasso fit. See documentation of the scoop package for interpretation of the object returned.

Author(s)

Linn Cecilie Bergersen <linncb@math.uio.no>
cvmslasso

Function computing the cross-validation curve for the monotone splines lasso and the adaptive monotone splines lasso.

Description

Function computing the cross-validation mean squared error for the monotone splines lasso and the adaptive monotone splines lasso.

Usage

cvmslasso(Xfcv, Yfcv, K, method, num.knots, w)

Arguments

Xfcv Covariate matrix
Yfcv Response variable
K Number of cross-validation folds.
method "monotone.lasso" if no adaptive step is used, "adaptive.monotone" if weights are provided for the adaptive monotone splines lasso.
num.knots Number of knots for the spline representation
w NULL if method = "monotone.lasso", vector of weights if method is "adaptive.monotone"

Details

For the adaptive monotone splines lasso w should be a vector of weights computed according to Bergersen et al (2014).

Value

Returns the cross-validated mean squared error

Author(s)

Linn Cecilie Bergersen <linncb@math.uio.no>

References

monotone.lasso  Function to fit the monotone splines lasso.

Description

Function fitting the monotone splines lasso.

Usage

monotone.lasso(Xf, Yf, familyf, num.knotsf)

Arguments

- Xf: Covariate matrix.
- Yf: Response variable.
- familyf: Specification for the model link functions. Only "gaussian" is supported.
- num.knotsf: Number of knots for the splines representation.

Value

Returns monotone splines lasso fit. See documentation of the scoop package for interpretation of the object returned.

Author(s)

Linn Cecilie Bergersen <linnecb@math.uio.no>

See Also

http://stat.genopole.cnrs.fr/logiciels/scoop

monotone.splines  Function for construction of monotone splines basis

Description

The function constructs a matrix representing the original covariates by their monotone splines basis with a given number of knots.

Usage

monotone.splines(Xf, num.knots)

Arguments

- Xf: Covariate matrix
- num.knots: Number of knots
The function transforms each covariate by to its monotone splines basis and returns the spline representation of all of them in a new matrix.

Z matrix with the monotone splines basis representation of the covariate matrix.

Linn Cecilie Bergersen <linneb@math.uio.no>
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