Package ‘spinyReg’

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Type Package
Title Sparse Generative Model and Its EM Algorithm
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Description Implements a generative model that uses a
spike-and-slab like prior distribution obtained by multiplying a
deterministic binary vector. Such a model allows an EM algorithm,
optimizing a type-II log-likelihood.
License GPL (>= 2)
Imports methods
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Description

Compute the path of solution of a spinyReg fit.

Usage

```r
spinyreg(X, Y, alpha = 0.1, gamma = 1, z = rep(1, ncol(X)),
    intercept = TRUE, normalize = TRUE, verbose = 1, recovery = TRUE,
    maxit = 1000, eps = 1e-10)
```

Arguments

- **X**: matrix of features. Do NOT include intercept.
- **Y**: matrix of responses.
- **alpha**: numeric scalar; prior value for the alpha parameter (see the model’s details). Default is 0.1.
- **gamma**: numeric scalar; prior value for the gamma parameter (see the model’s details). Default is 1.
- **z**: numeric vector; prior support of active variable. Default is `rep(1, p)`, meaning all variable activated.
- **intercept**: logical; indicates if a vector of intercepts should be included in the model. Default is `TRUE`.
- **normalize**: logical; indicates if predictor variables should be normalized to have unit L2 norm before fitting. Default is `TRUE`.
- **verbose**: integer; activate verbose mode from '0' (nothing) to '2' (detailed output). Should be included in the model. Default is `TRUE`.
- **recovery**: logical; indicates if the full path of models should be inspected for model selection. Default is `TRUE`.
- **maxit**: integer; the maximal number of iteration (i.e. number of alternated optimization between each parameter) in the Expectation/Maximization algorithm.
- **eps**: a threshold for convergence. Default is `1e-10`.

Value

An object with class `spinyreg`, see the documentation page `spinyreg` for details.

See Also

See also `spinyreg`. 
Examples

```r
## Not run:
x <- data[, 1:8]
y <- data[, 9]
out <- spinyreg(x, y, verbose=2)

## End(Not run)
```

Description

Class of object returned by the `spinyreg` function.

Slots

coefficients: numeric vector of coefficients with respect to the original input. Contains the intercept if the model owns any.
alpha: numeric scalar.
gamma: numeric scalar.
normx: Vector (class "numeric") containing the square root of the sum of squares of each column of the design matrix.
residuals: Vector of residuals.
r.squared: scalar giving the coefficient of determination.
fitted: Vector of fitted values.
monitoring: List (class "list") which contains various indicators dealing with the optimization process.
intercept: Logical which indicates if a intercept is included in the model.

Methods

This class comes with the usual predict(object, newx, ...), fitted(object, ...), residuals(object, ...), coefficients(object, ...), print(object, ...) and show(object) generic (undocumented) methods.
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