Package 'ROP'

September 3, 2018

Type Package

Title Regression Optimized: Numerical Approach for Multivariate Classification and Regression Trees

Version 1.0

Date 2018-08-30

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Description

Trees Classification and Regression using multivariate nodes calculated by an exhaustive numerical approach. We propose a new concept of decision tree, including multivariate knots and non hierarchical pathway. This package's model uses a multivariate nodes tree that calculates directly a risk score for each observation for the state Y observed. Nguyen JM, Gaultier A, Antonioli D (2015) <doi:10.1016/j.respe.2018.03.088> Castillo JM, Knol AC, Nguyen JM, Khammari A, Saint Jean M, Dreno B (2016) <doi:10.1684/ejd.2016.2826> Vildy S, Nguyen JM, Gaultier A, Khammari A, Dreno B (2017) <doi:10.1684/ejd.2016.2955> Nguyen JM, Gaultier A, Antonioli D (2018) <doi:10.1016/j.respe.2018.03.088>.

License GPL (>= 2.0)

URL http://www.univ-nantes.fr/site-de-l-universite-de-nantes/jean-michel-nguyen--3564.kjsp

Depends ROCR, R(>= 3.0)

NeedsCompilation no

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Details

The DESCRIPTION file:

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Index of help topics:

Author(s)

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Examples

```
rop(
  fic = system.file("extdata", "titanic.csv", package = "ROP"),
  output_folder = tempdir(),
  mini = -1,
  maxi = 1,
  nbCycles = 2,
  typesVariables = c(FALSE, FALSE, FALSE)
)
```

---

rop *Launch of the analysis*

Description

Launch function of the analysis

Usage

```
rop(fic, output_folder, mini, maxi, nbCycles, typesVariables)
```

Arguments

fic	Name of the file to analyze in csv format (for example titanic.csv)
output_folder	Path to the output folder
mini	Value of the minimum weighting
maxi	Value of the maximum weighting
nbCycles	Maximum number of cycles to apply
typesVariables	Boolean vector tracking qualitative (F) and quantitative (T) variables

Value

No value returned

Note

The results of the analysis are stored in 2 files: <file name> result.csv: contains for each stage and cycle of the analysis the coefficients retained, the threshold, the values of Se and Sp <file name> solution.csv: contains the detail of the values of each individual for the solution obtained for each cycle and stage

Author(s)

Jean-Michel Nguyen, Daniel Antonioli

Examples

```
rop(
  fic = system.file("extdata", "titanic.csv", package = "ROP"),
  output_folder = tempdir(),
  mini = -1,
  maxi = 1,
  nbCycles = 2,
  typesVariables = c(FALSE, FALSE, FALSE)
)
```

`titanic` *Data file*

Description

File containing the data to be analyzed

Usage

```
data(titanic)
```

Format

The data file is in CSV format with a semicolon separator for columns. Decimal values use the point as a decimal separator. The first line must include the field names. The file includes n + 2 fields, where 'n' is the number of variables. The format is as follows:

`Id` Case identification number

`ETAT` Etat `Sick` `Not Sick` of the case

`Class` Class

`Sexe` Sex

`Age` Age

Author(s)

Jean-Michel Nguyen, Daniel Antonioli

Examples

```
data(titanic)
```

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