

Package: miceDRF (via r-universe)

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Type Package

Title Imputation with 'mice' and Distributional Random Forests

Version 0.1.0

Description Provides a custom imputation method for the 'mice' package based on distributional random forests. The package implements the 'mice.impute.DRF' method, which can be used within the standard 'mice' workflow. Missing values are imputed by estimating conditional distributions with distributional random forests and sampling observed responses using forest weights.

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Encoding UTF-8

URL <https://github.com/KrystynaGrzesiak/miceDRF>,
<https://krystynagrzesiak.github.io/miceDRF/>

BugReports <https://github.com/KrystynaGrzesiak/miceDRF/issues>

Imports drf

Suggests mice, spelling, testthat (>= 3.0.0)

Language en-US

Config/testthat/edition 3

RoxygenNote 7.3.3

Repository <https://krystynagrzesiak.r-universe.dev>

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RemoteUrl <https://github.com/krystynagrzesiak/micedrf>

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mice.impute.DRF *Imputation with Distributional Random Forests for 'mice'*

Description

Imputes missing values using distributional random forests within the multiple imputation by chained equations framework implemented in the **mice** package.

Usage

```
mice.impute.DRF(
  y,
  ry,
  x,
  wy = NULL,
  min.node.size = 1,
  num.features = 10,
  num.trees = 10,
  ...
)
```

Arguments

y	Vector to be imputed.
ry	Logical vector indicating which elements of y are observed and used to fit the imputation model.
x	Numeric design matrix with length(y) rows, containing predictors for y. The matrix should not contain missing values.
wy	Logical vector indicating elements of y for which imputations are generated. If NULL, defaults to !ry.
min.node.size	Target minimum number of observations in each tree leaf in the distributional random forest. Default is 1.
num.features	Number of random features to sample at each split. Default is 10.
num.trees	Number of trees in the distributional random forest. Default is 10.
...	Additional arguments passed by mice for compatibility with the mice.impute interface. Currently ignored.

Details

This function is called internally by mice when the imputation method is set to "DRF". For each variable with missing values, a distributional random forest is fitted to the observed values using the remaining variables as predictors. Missing values are then imputed by sampling observed responses according to the forest weights.

Value

A numeric vector of imputed values for the entries of y indicated by wy . The vector has length $\text{sum}(wy)$ and is returned to `mice` to replace the missing values in the current variable.

References

Näf, J., Scornet, E., and Josse, J. (2024). "What is a good imputation under MAR missingness?" <https://arxiv.org/abs/2403.19196>.

Cevic, D., Michel, L., Näf, J., Meinshausen, N., and Buehlmann, P. (2022). "Distributional random forests: Heterogeneity adjustment and multivariate distributional regression." *Journal of Machine Learning Research*, 23(333), 1–79.

Examples

```
library(mice)

set.seed(123)
X <- matrix(rnorm(1000), nrow = 100)
X[runif(length(X)) < 0.3] <- NA

imp <- mice(X, method = "DRF", m = 1, maxit = 1, printFlag = FALSE)
complete(imp)
```

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