

Package ‘RegEnRF’

December 22, 2025

Type Package

Title Regression-Enhanced Random Forests

Version 1.0.0

Description A novel generalized Random Forest method, that can improve on RFs by borrowing the strength of penalized parametric regression. Based on Zhang et al. (2019) <doi:10.48550/arXiv.1904.10416>.

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BugReports <https://github.com/umbe1987/regenrf/issues>

Imports glmnet, randomForest

Suggests testthat (>= 3.0.0)

Config/testthat.edition 3

Encoding UTF-8

RoxygenNote 7.3.3

URL <https://github.com/umbe1987/regenrf>

NeedsCompilation no

Author Umberto Minora [aut, cre, cph] (ORCID:
<<https://orcid.org/0000-0003-2151-6500>>)

Maintainer Umberto Minora <umbertofilippo@tiscali.it>

Repository CRAN

Date/Publication 2025-12-22 18:00:08 UTC

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`predict.RegEnRF`*Prediction of test data using Regression-Enhanced Random Forests.***Description**

Prediction of test data using Regression-Enhanced Random Forests.

Usage

```
## S3 method for class 'RegEnRF'
predict(object, newx, ...)
```

Arguments

<code>object</code>	an object of class "RegEnRF", as that created by the function RegEnRF
<code>newx</code>	matrix of new values for x at which predictions are to be made function will abort.
<code>...</code>	other arguments passed to <code>glmnet::predict.glmnet</code> and <code>randomForest::predict.randomForest</code> .

Value

A vector of predicted values.

Examples

```
set.seed(111)
x <- matrix(rnorm(100 * 20), 100, 20)
y <- rnorm(100)
mod <- RegEnRF(x, y, lambda = 0.1)
predict(mod, newx = x)
```

`RegEnRF`*Regression-Enhanced Random Forests***Description**

`RegEnRF()` implements Regression-Enhanced Random Forests algorithm (based on Zhang et al., 2019 paper) for regression.

Usage

```
RegEnRF(x, y, lambda, ...)
```

Arguments

x	A numeric matrix of predictors. Requirement: nvars > 1; in other words, x should have 2 or more columns. This is a constraint of <code>glmnet::glmnet()</code> .
y	A numeric response vector.
lambda	See 'lambda' argument in <code>glmnet::glmnet()</code> .
...	other arguments passed to <code>glmnet::glmnet()</code> and <code>randomForest::randomForest()</code> .

Details

This function is based on the packages `randomForest::randomForest` and `glmnet::glmnet`.

Value

An object with S3 class "RegEnRF"

Author(s)

Umberto Minora <umbertofilippo@tiscali.it>, based on the paper by Zhang et al. (2019).

References

Zhang, H., Nettleton, D., & Zhu, Z. (2019). Regression-enhanced random forests. arXiv preprint doi:[10.48550/arXiv.1904.10416](https://doi.org/10.48550/arXiv.1904.10416).

Examples

```
set.seed(111)
data(co2)
x <- matrix(c(time(co2), cycle(co2)), ncol = 2)
y <- as.numeric(co2)
mod <- RegEnRF(x, y, lambda = 0.1)
freq <- frequency(co2)
startt <- tsp(co2)[2] + 1 / freq
xnew.t <- seq(startt, by = 1 / freq, length.out = freq * 3)
xnew <- matrix(c(xnew.t, cycle(tail(co2, freq * 3))), ncol = 2)
pred <- predict(mod, xnew)
pred.ts <- ts(pred, start = startt, frequency = freq)
plot(ts.union(co2, pred.ts), plot.type = "single", col = c("black", "red"))
```

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