

# Package: kfold (via r-universe)

June 3, 2026

**Title** Machine Learning for Runoff Prediction

**Version** 0.1.1

**Description** Machine learning In k-fold cross validation .

**License** MIT + file LICENSE

**Encoding** UTF-8

**LazyData** true

**Imports** hydroGOF, ranger, randomForest, xgboost, data.table, magrittr,  
Ipaper, plyr, furr, future, dplyr, tidyselect, purrr

**Roxygen** list(markdown = TRUE)

**RoxygenNote** 7.3.3

**Remotes** rpkg/Ipaper

**Config/pak/sysreqs** cmake libfontconfig1-dev libfreetype6-dev libfribidi-dev git make libharfbuzz-  
dev libgit2-dev libicu-dev libpng-dev libuv1-dev libssl-dev libx11-dev zlib1g-dev

**Repository** <https://rpkg.r-universe.dev>

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**RemoteRef** HEAD

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kfold_calib	<i>kfold_calib</i>
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**Description**

kfold\_calib

**Usage**

```
kfold_calib(X, Y, FUN = xgboost, index = NULL, ..., ratio_valid = 0.3)
```

**Arguments**

index	index of validation set
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kfold_ml	<i>kfold machine learning</i>
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**Description**

kfold machine learning

**Usage**

```
kfold_ml(X, Y, kfold = 5, FUN, ..., .progress = TRUE)
```

```
kfold_rf(X, Y, kfold = 5, FUN = ranger, ntree = 500, importance = "none", ...)
```

```
kfold_xgboost(X, Y, kfold = 5, FUN = xgboost, nrounds = 500, ...)
```

```
kfold_lm(X, Y, kfold = 5, ...)
```

**Arguments**

...	Further arguments passed to or from other methods (currently ignored).
importance	Variable importance mode, one of 'none', 'impurity', 'impurity_corrected', 'permutation'. The 'impurity' measure is the Gini index for classification, the variance of the responses for regression and the sum of test statistics (see <code>splitrule</code> ) for survival.
nrounds	Number of boosting iterations / rounds. Note that the number of default boosting rounds here is not automatically tuned, and different problems will have vastly different optimal numbers of boosting rounds.

**See Also**

[ranger::ranger\(\)](#), [xgboost::xgboost\(\)](#)

**Examples**

```
set.seed(1)
n <- 100 ; p <- 2
X <- matrix(rnorm(n * p), n, p) # no intercept!
y <- as.matrix(rnorm(n))

## kfold
r_lm <- kfold_lm(X, y)
r_xgb <- kfold_xgboost(X, y)
# r_rf <- kfold_rf(X, y)

## 70%-30% split
r = kfold_calib(X, y, ratio_valid = 0.7, nrounds=500, verbose=FALSE)
r$gof
```

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NSE

*GOF*

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**Description**

Good of fitting

**Usage**

NSE(yobs, ysim, w, ...)

GOF(yobs, ysim, w, include.cv = FALSE, include.r = TRUE)

**Arguments**

yobs	Numeric vector, observations
ysim	Numeric vector, corresponding simulated values
w	Numeric vector, weights of every points. If w included, when calculating mean, Bias, MAE, RMSE and NSE, w will be taken into considered.
include.cv	If true, cv will be included.
include.r	If true, r and R2 will be included.

**Value**

- RMSE root mean square error
- NSE NASH coefficient
- MAE mean absolute error

- AI Agreement index (only good points ( $w == 1$ )) participate to calculate. See details in Zhang et al., (2015).
- Bias bias
- Bias\_perc bias percentage
- n\_sim number of valid obs
- cv Coefficient of variation
- R2 correlation of determination
- R pearson correlation
- pvalue pvalue of R

## References

1. [https://en.wikipedia.org/wiki/Coefficient\\_of\\_determination](https://en.wikipedia.org/wiki/Coefficient_of_determination)
2. [https://en.wikipedia.org/wiki/Explained\\_sum\\_of\\_squares](https://en.wikipedia.org/wiki/Explained_sum_of_squares)
3. [https://en.wikipedia.org/wiki/Nash%E2%80%93Sutcliffe\\_model\\_efficiency\\_coefficient](https://en.wikipedia.org/wiki/Nash%E2%80%93Sutcliffe_model_efficiency_coefficient)
4. Zhang Xiaoyang (2015), <http://dx.doi.org/10.1016/j.rse.2014.10.012>

## Examples

```
yobs <- rnorm(100)
ysim <- yobs + rnorm(100) / 4
GOF(yobs, ysim)
```

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```
previous_tn
```

```
previous_tn
```

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## Description

```
previous_tn
```

## Usage

```
previous_tn(x, n = 7, prefix = "", ...)
```

```
## Default S3 method:
```

```
previous_tn(x, n = 7, prefix = "", ...)
```

```
## S3 method for class 'data.frame'
```

```
previous_tn(x, n = 7, ...)
```

## Examples

```
set.seed(1)
x <- rnorm(10)
previous_tn(x, 7, "R1_")
# data.frame
d = data.frame(x)
previous_tn(d)
```

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