

# Package ‘fRLR’

October 12, 2023

**Type** Package

**Title** Fit Repeated Linear Regressions

**SystemRequirements** GNU Scientific Library (GSL). Note: users should have GSL installed.

**Version** 1.3.0

**Date** 2023-10-10

**Author** Lijun Wang [aut, cre, cph]

**Maintainer** Lijun Wang <szcfweiya@gmail.com>

**Description** When fitting a set of linear regressions which have some same variables, we can separate the matrix and reduce the computation cost. This package aims to fit a set of repeated linear regressions faster. More details can be found in this blog Lijun Wang (2017) <<https://stats.hohoweiya.xyz/regression/2017/09/26/An-R-Package-Fit-Repeated-Linear-Regressions/>>.

**License** GPL (>= 2)

**URL** <https://github.com/szcf-weiya/fRLR>,  
<https://stats.hohoweiya.xyz/regression/2017/09/26/An-R-Package-Fit-Repeated-Linear-Regressions/>

**Imports** Rcpp (>= 0.12.12)

**LinkingTo** Rcpp

**RoxygenNote** 7.2.3

**Encoding** UTF-8

**Suggests** knitr, rmarkdown, testthat (>= 3.0.0)

**VignetteBuilder** knitr

**Config/testthat/edition** 3

**NeedsCompilation** yes

**Repository** CRAN

**Date/Publication** 2023-10-12 13:20:06 UTC

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f1r1	<i>Fit Repeated Linear Regressions with One Variable</i>
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### Description

Fit a set of linear regressions which differ only in one variable.

### Usage

```
f1r1(R_X, R_Y, R_COV, num_threads = -1L)
```

### Arguments

R_X	the observation matrix
R_Y	the response
R_COV	common variables
num_threads	number of threads for openmp. If it is -1 (default), it will use all possible threads.

### Value

the fitting results for each regression.

### Examples

```
set.seed(123)
X = matrix(rnorm(50), 10, 5)
Y = rnorm(10)
COV = matrix(rnorm(40), 10, 4)
f1r1(X, Y, COV)
```

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`frlr2`*Fit Repeated Linear Regressions with Two Variables*

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**Description**

Fit a set of linear regressions which differ only in two variables.

**Usage**

```
frlr2(R_X, R_idx1, R_idx2, R_Y, R_COV, num_threads = -1L)
```

**Arguments**

<code>R_X</code>	the observation matrix
<code>R_idx1</code>	the first identical feature
<code>R_idx2</code>	the second identical feature
<code>R_Y</code>	the response variable
<code>R_COV</code>	common variables
<code>num_threads</code>	number of threads for openmp. If it is -1 (default), it will use all possible threads.

**Value**

the fitting results for each regression.

**Examples**

```
set.seed(123)
X = matrix(rnorm(50), 10, 5)
Y = rnorm(10)
COV = matrix(rnorm(40), 10, 4)
idx1 = c(1, 2, 3, 4, 1, 1, 1, 2, 2, 3)
idx2 = c(2, 3, 4, 5, 3, 4, 5, 4, 5, 5)
frlr2(X, idx1, idx2, Y, COV)
```

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