

# Package ‘FRI’

October 12, 2022

**Title** Relative Importance of Main and Interaction Effects

**Version** 1.0

**Description** Computes relative importance of main and interaction effects. Also, sum of the modified generalized weights is computed. Ibrahim et al. (2022) <[doi:10.1134/S1064229322080051](https://doi.org/10.1134/S1064229322080051)>.

**License** MIT + file LICENSE

**Encoding** UTF-8

**RoxygenNote** 7.1.2

**Imports** neuralnet, RSNNS, stats, ggplot2, forcats

**NeedsCompilation** no

**Author** Omar Maghawry Ibrahim [aut, cre]  
(<<https://orcid.org/0000-0003-3439-9155>>)

**Maintainer** Omar Maghawry Ibrahim <dromarnrc@gmail.com>

**Repository** CRAN

**Date/Publication** 2022-08-17 07:20:02 UTC

## R topics documented:

rimi . . . . .	1
<b>Index</b>	<b>3</b>

---

rimi	<i>Relative Importance of Main and Interaction Effects</i>
------	--

---

## Description

A new method to compute relative importance of main and interaction effects of inputs in Artificial Neural Networks. The method was published in a paper on 20 June 2022 at <https://link.springer.com/article/10.1134/S1064229322080051> under the title of "Modeling Main and Interactional Effects of Some Physiochemical Properties of Egyptian Soils on Cation Exchange Capacity Via Artificial Neural Networks". The relative importance is computed based on R square, and recomputed based on 100 percent for comparison. Also, sum of the modified generalized weights is computed.

**Usage**

```
rimi(data)
```

**Arguments**

```
data          input data set
```

**Details**

The data must be two or more numeric inputs and one output, the output must be in the last column, columns must have headers or names. The used neural network is Multilayer perceptron with back propagation algorithm. The number of neurons in hidden layer is 1.6 times the number of inputs. If you want to change these setting, you can use the code on github.

**Value**

A table and figure with relative importance of inputs and their two way interaction

**Source**

<https://github.com/dromarnrc/Modified-Generalized-Weights/blob/main/MGW>

**References**

Ibrahim, O.M., El-Gamal, E.H., Darwish, K.M. Modeling Main and Interactional Effects of Some Physiochemical Properties of Egyptian Soils on Cation Exchange Capacity Via Artificial Neural Networks. Eurasian Soil Sc. (2022). <https://doi.org/10.1134/S1064229322080051>

**Examples**

```
x1<-rnorm(100,2,0.5)
x2<-rnorm(100,3,2)
y<-rnorm(100,6,3)
df<-data.frame(x1,x2,y)
rimi(df)
```

# Index

rimi, 1