

# Package: `simpr.interaction` (via `r-universe`)

September 21, 2026

**Type** Package

**Title** Calculating Parameters for Simulation-Based Regression  
Interaction Power Analysis

**Version** 0.1.0

**Description** Provides functionality for analytically calculating  
parameters (via the `InteractionPowerR` package) useful for  
simulation of moderated multiple regression, based on the  
correlations among the predictors and outcome and the  
reliability of predictors.

**Imports** `InteractionPowerR`

**License** GPL-2

**Encoding** UTF-8

**URL** <https://github.com/statisfactions/simpr.interaction/>

**BugReports** <https://github.com/statisfactions/simpr.interaction/issues/>

**RoxygenNote** 7.2.3

**Config/pak/sysreqs** `cmake make libicu-dev`

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

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**RemoteUrl** <https://github.com/statisfactions/simpr.interaction>

**RemoteRef** HEAD

**RemoteSha** 39cdc748bf81cc2dc3fcbfe4c775b3048a3a646f

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|--------------------|-------------------------------------------------------------------------------------------|
| interaction_params | <i>Extract simulation parameters for power analysis of regression interaction models.</i> |
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## Description

Extract useful simulation parameters for regression.interaction models, computed via change in R2. This function is largely a wrapper for `power_interaction_r2()` from the InteractionPowerR package which calculates useful quantities based on correlations and reliabilities. This function then massages the output into a more convenient format for `simpr` as well as calculating R2 and sigma.

## Usage

```
interaction_params(
  r.x1.y,
  r.x2.y,
  r.x1x2.y,
  r.x1.x2,
  rel.x1 = 1,
  rel.x2 = 1,
  rel.y = 1
)
```

## Arguments

|                       |                                                                                                                                                                                       |
|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <code>r.x1.y</code>   | Pearson's correlation between x1 and y. Must be between -1 and 1. Has no default value. Can be a single value or a vector of values.                                                  |
| <code>r.x2.y</code>   | Pearson's correlation between x2 and y. Must be between -1 and 1. Assumed to be the 'moderator' in some functions. Has no default value. Can be a single value or a vector of values. |
| <code>r.x1x2.y</code> | Pearson's correlation between the interaction term x1x2 ( $x1 * x2$ ) and y. Must be between -1 and 1. Has no default value. Can be a single value or a vector of values.             |
| <code>r.x1.x2</code>  | Pearson's correlation between x1 and x2. Must be between -1 and 1. Has no default value. Can be a single value or a vector of values.                                                 |
| <code>rel.x1</code>   | Reliability of x1 (e.g. test-retest reliability, ICC, Cronbach's alpha). Default is 1 (perfect reliability). Must be greater than 0 and less than or equal to 1.                      |
| <code>rel.x2</code>   | Reliability of x2 (e.g. test-retest reliability, ICC, Cronbach's alpha). Default is 1 (perfect reliability). Must be greater than 0 and less than or equal to 1.                      |
| <code>rel.y</code>    | Reliability of y (e.g. test-retest reliability, ICC, Cronbach's alpha). Default is 1 (perfect reliability). Must be greater than 0 and less than or equal to 1.                       |

## Value

A single-row dataframe with the following

**Examples**

```
params_all = interaction_params(r.x1.y = -0.18,  
  r.x2.y = -0.03,  
  r.x1.x2 = 0.64,  
  r.x1x2.y = 0.1,  
  rel.y = 0.79,  
  rel.x1 = 0.89,  
  rel.x2 = 0.95)
```

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