

Package ‘bigsimr’

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Title Fast Generation of High-Dimensional Random Vectors

Version 0.11.2

Description Simulate multivariate data with arbitrary marginal distributions.

'bigsimr' is a package for simulating high-dimensional multivariate data with a target correlation and arbitrary marginal distributions via Gaussian copula.

It utilizes a Julia package named 'BigSimr.jl' for its core routines.

URL <https://github.com/SchisslerGroup/r-bigsimr>

BugReports <https://github.com/SchisslerGroup/BigSimr.jl/issues>

Depends R (>= 3.6.0)

License GPL-3

Encoding UTF-8

SystemRequirements Julia (>= 1.5), BigSimr.jl, Distributions.jl

RoxygenNote 7.1.1

Imports JuliaCall

Suggests testthat (>= 3.0.0)

Config/testthat/edition 3

NeedsCompilation no

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bigsimr_setup	<i>Setup bigsimr</i>
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Description

This function initializes Julia and the Bigsimr.jl package. The first time will be long since it includes precompilation. Additionally, this will install Julia and the required packages if they are missing.

Usage

```
bigsimr_setup(pkg_check = TRUE, ...)
```

Arguments

pkg_check	logical, check for Bigsimr.jl package and install if necessary
...	Parameters are passed down to JuliaCall::julia_setup

Value

Return the imported wrapper of Bigsimr.jl Julia package

Examples

```
## bigsimr_setup() is time-consuming and requires Julia+Bigsimr.jl
## Not run:
library(bigsimr)
bs <- bigsimr::bigsimr_setup()
dist <- bigsimr::distributions_setup()

JuliaCall::julia_eval('using Random; Random.seed!(1);')
# Generate random target correlation matrix
target_corr <- bs$cor_randPD(3)
# Set the margins of variables
margins <- c(dist$Binomial(20, 0.2), dist$Beta(2, 3), dist$LogNormal(3, 1))
# Adjust target correlation matrix using Pearson matching
adjusted_corr <- bs$pearson_match(target_corr, margins)
# Generate random vectors
x <- bs$rvec(10000, adjusted_corr, margins)

## End(Not run)
```

distributions_setup *Setup Distributions.jl*

Description

This function initializes the Distributions package that many of the bigsimr functions work with.

Usage

```
distributions_setup()
```

Value

Return the imported wrapper of Distributions.jl Julia package

Examples

```
## distributions_setup() is time-consuming and requires Julia+Distributions.jl
## Not run:
library(bigsimr)
bs <- bigsimr::bigsimr_setup()
dist <- bigsimr::distributions_setup()

JuliaCall::julia_eval('using Random; Random.seed!(1);')
# Generate random target correlation matrix
target_corr <- bs$cor_randPD(3)
# Set the margins of variables
margins <- c(dist$Binomial(20, 0.2), dist$Beta(2, 3), dist$LogNormal(3, 1))
# Adjust target correlation matrix using Pearson matching
adjusted_corr <- bs$pearson_match(target_corr, margins)
# Generate random vectors
x <- bs$rvec(10000, adjusted_corr, margins)

## End(Not run)
```

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