Package 'fastrerandomize'

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Title fastrerandomize: R Package for Ultra Fast Re-randomization Using a JAX Backend

Version 0.1

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Description An R Package for Ultra Fast Re-randomization Using a JAX Backend

Depends R (>= 3.3.3)

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Encoding UTF-8

LazyData false

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Imports reticulate

RoxygenNote 7.2.3

R topics documented:

`generate_data` *Generate data*

Description

Generate data

Usage

```
generate_data()
```

Value

A list consiting of

- pval A p-value.

References

-

Examples

```
# For a tutorial, see
# github.com/cjerzak/fastrerandomization
```

`InitializeJAX` *Initialize JAX*

Description

Initialize JAX

Usage

```
InitializeJax(conda_env, conda_env_required)
```

Arguments

conda_env	A character string representing the conda environment to activate. A version of JAX should live in that environment.
conda_env_required	A logical representing whether to force use the specified conda environment.

Value

This function initializes a JAX-containing conda environment as specified by `conda_env`. This function must be run before any others in `fastrerandomize`.

Examples

```
# For a tutorial, see
# github.com/cjerzak/fastrerandomization-software
```

InitializeJAXFxns *Initialize JAX functions*

Description

Initialize JAX functions

Usage

```
InitializeJAXFxns()
```

Arguments

`...`	This function takes no arguments

Value

This function should be run just after `fastrerandomize::InitializeJax`.This sets up the internal JAX functions for rerandomization analysis.

Examples

```
# For tutorials, see
# github.com/cjerzak/fastrerandomization-software
```

randomization_test *Fast randomization test*

Description

Fast randomization test

Usage

```
randomization_test(X, ...)
```

Arguments

`obsW`	A numeric vector where `0`'s correspond to control units and `1`'s to treated units.
`obsY`	An optional numeric vector of observed outcomes. If not provided, the function assumes a NULL value.
`X`	A numeric matrix of covariates.
`alpha`	The significance level for the test. Default is `0.05`.
`candidate_randomizations`	A numeric matrix of candidate randomizations.
`candidate_randomizations_array`	An optional JAX array of candidate randomizations. If not provided, the function coerces `candidate_randomizations` into a JAX array.

n0_array	An optional array specifying the number of control units.
n1_array	An optional array specifying the number of treated units.
prior_treatment_effect_mean	An optional numeric value for the prior mean of the treatment effect. Default is NULL.
prior_treatment_effect_SD	An optional numeric value for the prior standard deviation of the treatment effect. Default is NULL.
true_treatment_effect	An optional numeric value specifying the true treatment effect. Default is NULL.
simulate	A logical value indicating whether to run randomization_test in simulation mode. Default is FALSE.
coef_prior	An optional function generating coefficients on values of X for predicting Y(0).
nSimulate_obsW	A numeric value specifying the number of simulated values for obsW. Default is 50L.
nSimulate_obsY	A numeric value specifying the number of simulated values for obsY. Default is 50L.
randomization_accept_prob	An numeric scalar or vector of probabilities for accepting each randomization.
findFI	A logical value indicating whether to find the fiducial interval. Default is FALSE.
c_initial	A numeric value representing the initial criterion for the randomization. Default is 2.

Value

A list consisting of

- p_value A numeric value or vector representing the p-value of the test (or the expected p-value under the prior structure specified in the function inputs).
- FI A numeric vector representing the fiducial interval if findFI=T.
- tau_obs A numeric value or vector representing the estimated treatment effect(s)

References

-

Examples

```
# For a tutorial, see
# github.com/cjerzak/fastrerandomization-software
```

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