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*

Description

Initialize JAX

Usage

```
InitializeJAXFxns()
```

Value

A list consiting of

-

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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