Package 'nemtr'

January 18, 2023

Title Nonparametric Extended Median Test - Cumulative Summation Method

Version 0.0.1.0

Description Calculates a cumulative summation nonparametric extended median test based on the work of Brown & Schaffer (2020) <DOI:10.1080/03610926.2020.1738492>. It then generates a control chart to assess processes and determine if any streams are out of control.

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Encoding UTF-8

RoxygenNote 7.2.1

URL https://github.com/calebgreski/nemtr

BugReports https://github.com/calebgreski/nemtr/issues

Imports magrittr, tidyr, dplyr, ggplot2

Suggests testthat

Depends R (>= 3.50)

Config/testthat/edition 3

NeedsCompilation no

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Repository CRAN

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R topics documented:

dataRead *Read and Validate Dataframe*

Description

Read in data and validate before analysis is conducted

Usage

```
dataRead(
  dataFrame,
  timing,
  streams,
  VoI = NA,
  type = "long",
  median0 = NA,
  delta = 3
)
```

Arguments

dataFrame	A user inputted dataframe, can be wide or long
timing	A string of the timing variable name
streams	A string of the streams variable name
VoI	A string of the Variable of Interest name
type	A string of the type of data (default long)
median0	A value for expected median
delta	A value for delta (default 3)

Value

A validated dataframe in long format

Examples

```
set.seed(795014178)
streams <- 20
time <- 60
samples <- 15
mu0 <- 3
delta <- 3
library(dplyr)
turnstiles <- tibble(
  turnstile = rep(rep(1:streams,each=samples),time),
  hour = rep(1:time,each=streams * samples),
  sample = rep(rep(1:samples), times = streams * time),
```

```
  waitTime = rexp(streams * time * samples,rate=.22985)
  ) %>% mutate(waitTime = if_else(hour == 38, waitTime * 2,waitTime))
dataRead(turnstiles, timing="hour", streams="sample", VoI="waitTime", type="long", median0 = 3)
```

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nemtr *Nonparametric Extended Median Test*

Description

Take a dataframe, validate it, and then conduct the Nonparametric Extended Median Test to generate and display a control chart

Usage

```
nemtr(
  dataFrame,
  timing,
  streams,
  VoI = NA,
  type = "long",
  median0 = NA,
  delta = 3
)
```

Arguments

dataFrame	A user inputted dataframe, can be wide or long
timing	A string of the timing variable name
streams	A string of the streams variable name
VoI	A string of the Variable of Interest name
type	A string of the type of data (default long)
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Examples

```
set.seed(795014178)
streams <- 20
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mu0 <- 3
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```
delta <- 3
library(dplyr)
turnstiles <- tibble(
  turnstile = rep(rep(1:streams,each=samples),time),
  hour = rep(1:time,each=streams * samples),
  sample = rep(rep(1:samples), times = streams * time),
  waitTime = rexp(streams * time * samples,rate=.22985)
  ) %>% mutate(waitTime = if_else(hour == 38, waitTime * 2,waitTime))
nemtr(turnstiles, timing="hour", streams="sample", VoI="waitTime", type="long", median0 = 3)
```

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