

# Package: nemtr (via r-universe)

January 10, 2025

**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](https://doi.org/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

**Roxygen** list(markdown = TRUE)

**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)

**LazyData** true

**Config/testthat/edition** 3

**Config/pak/sysreqs** libicu-dev

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

**RemoteUrl** <https://github.com/calebgreski/nemtr>

**RemoteRef** HEAD

**RemoteSha** 555f5d4cb0e9b539041d6c2db7fae27c7b219620

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dataRead	<i>Read and Validate Dataframe</i>
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### 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*


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## 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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## 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))
nemtr(turnstiles, timing="hour", streams="sample", VoI="waitTime", type="long", median0 = 3)
```

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