Package 'activityCounts'

July 22, 2025

Type Package

Title Generate ActiLife Counts

Version 0.2.1

Description ActiLife software generates activity counts from data collected by Actigraph accelerometers <https://s3.amazonaws.com/actigraphcorp.com/wp-content/uploads/2017/11/26205758/ActiGraph-White-Paper_What-is-a-Count_.pdf>.
Actigraph is one of the most common research-grade accelerometers. There is considerable research validating and developing algorithms for human activity using ActiLife counts. Unfortunately, ActiLife counts are proprietary and difficult to implement if researchers use different accelerometer brands.
The code creates ActiLife counts from raw acceleration data for different accelerometer brands and it is developed based on the study done by Brond and others (2017) <doi:10.1249/MSS.0000000000001344>.

URL https://github.com/walkabillylab/activityCounts, https://github.com/jbrond/ActigraphCounts

BugReports https://github.com/walkabillylab/activityCounts/issues

Depends R (>= 2.10)

License GPL-3

Encoding UTF-8

LazyData true

RoxygenNote 7.2.3

Suggests knitr, rmarkdown, ggplot2, testthat (>= 3.0.0)

VignetteBuilder knitr

Imports seewave, signal, tibble, lubridate, magrittr

Config/testthat/edition 3

NeedsCompilation no

Author Ruben Brondeel [aut],
Javad Rahimipour Anaraki [aut],
Daniel Fuller [aut, cph, cre],

SeyedJavad KhataeiPour [aut],
Beap Lab [cph]

Maintainer Daniel Fuller <daniel.fuller@usask.ca>

Repository CRAN

Date/Publication 2025-04-07 16:10:05 UTC

Contents

`counts` *counts*

Description

Calculates ActiLife counts based on raw accelerometer data

Usage

```
counts(
  data,
  hertz = -1,
  x_axis = 2,
  y_axis = 3,
  z_axis = 4,
  time_column = -1,
  start_time = -1
)
```

Arguments

`data`	Accelerometer data, Must have at least three columns.
`hertz`	Sampling frequency in Hz
`x_axis`	Indicates the column number which has the accel data for x direction, the default is 2
`y_axis`	Indicates the column number which has the accel data for y direction, the default is 3
`z_axis`	Indicates the column number which has the accel data for z direction, the default is 4

time_column	Optional. Indicates the column number which has the date and time. The first row will be considered as the start time of the study. You can use the "start_time" argument to provide the start time explicitly.
start_time	Optional. Use this to define the start time of the experiment. You can use this argument if the data does not contain a time column.

Value

Returns a data.table with four columns:

Time The start time of the measurement

x the number of counts for X axis

y the number of counts for Y axis

z the number of counts for Z axis

See Also

sampleXYZ raw accelerometer data for testing counts() function.

sampleCounts counts calculated by activityCounts and ActiLife

Examples

```
# for tha sampleXYZ dataset, sampling frequency is 100 Hz
counts(data = sampleXYZ, hertz = 100)

# when start time is given explicitly
study_start_time <- "2017-08-22 12:30:10"
counts(data = sampleXYZ, hertz = 100 , start_time = study_start_time)

# the data has a time column, which is the first column
counts(data = sampleXYZ, hertz = 100 , time_column = 1)

# explicitly specify the X, Y and Z axis columns.
counts(data = sampleXYZ, hertz = 100 , x_axis = 2,y_axis = 3, z_axis = 4)
```

---

pptrunc *pptrunc*

Description

pptrunc

Usage

```
pptrunc(data, max_value)
```

Arguments

data	The variable that will be truncated
max_value	The upper bound (-max_value is the lower bound)

Value

the highest(or the lowest) value of "data" and "max_value"

---

runsum *runsum*

Description

runsum

Usage

```
runsum(data, len, threshold)
```

Arguments

data	input data
len	the length
threshold	the threshold

Value

returns a

---

sampleCounts *The counts calculated by activityCounts and ActiLife based on included raw accelerometer data*

Description

A simple `data.table` which its first row is measurement time. Then for each time step, counts are calculated by `activityCounts` and the ActiLife software. The counts are calculated based on included `sampleXYZ` dataset, which its sampling frequency is 100H.

Usage

```
sampleCounts
```

Format

A `data.table` with nine columns:

Time Date and time

activityCounts_x_counts counts calculated by `counts()` function in X direction

activityCounts_y_counts counts calculated by `counts()` function in Y direction

activityCounts_z_counts counts calculated by `counts()` function in Z direction

ActiLife_x_counts counts calculated by ActiLife software in X direction

ActiLife_y_counts counts calculated by ActiLife software in Y direction

ActiLife_z_counts counts calculated by ActiLife software in Z direction

See Also

counts to see how to produce counts.

sampleXYZ raw accelerometer data for testing `counts()` function.

`sampleXYZ` *Raw accelerometer data for the activityCounts package*

Description

A simple `data.table` that contains raw accelerometer data for testing the `counts` function. Sampling frequency of this `data.table` is 100Hz, therefore pass 100 as the second argument when using the `counts` function.

Usage

```
sampleXYZ
```

Format

A `data.table` with four columns:

Time Timestamp

accelerometer_X accelerometer data in X direction

accelerometer_Y accelerometer data in Y direction

accelerometer_Z accelerometer data in Z direction

See Also

counts to see how to produce counts.

sampleCounts counts calculated by `activityCounts` and ActiLife

trunc *trunc*

Description

trunc

Usage

```
trunc(data, min_value)
```

Arguments

data	The input variable which will be altered if less than the threshold
min_value	the threshold which the input below it will be set to zero

Value

returns zero if the "data" is less than the "mean_value" otherwise returns the "data"

Index