Package: actiplot (via r-universe)

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Type Package

Title Plotting Minute-Level Activity Data

Version 0.1.0

Description Provides 'ggplot2' plots for minute-level activity data, including step counts and activity counts. Time series can be displayed over the full recording period or aligned by time of day and faceted into one row per date. Includes example activity data described by Chadwell et al. (2019) <doi:10.1038/s41597-019-0211-6>.

License GPL-3

Depends R (>= 3.5)

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BugReports https://github.com/jhuwit/actiplot/issues

Imports actibase (>= 0.6.0), ggplot2, hms, rlang

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`acti_minute_data` *Minute-level accelerometer counts*

Description

A seven-day example of minute-level accelerometer data. It contains a timestamp, counts for each accelerometer axis, vector-magnitude counts, log-transformed counts, and a wear indicator. The data are suitable for the examples in `acti_plot_time()`, `acti_plot_day()`, and `acti_plot_heatmap()`.

Usage

```
acti_minute_data
```

Format

A tibble with 10,080 rows and 7 variables:

time Timestamp of the minute, as POSIXct.

axis1, axis2, axis3 Axis-specific activity counts.

counts Vector-magnitude activity counts.

counts_log10 Log10-transformed vector-magnitude counts.

wear Whether the minute was classified as wear time.

Details

The original study recorded seven days of wrist-worn ActiGraph activity from 20 myoelectric prosthesis users and 20 anatomically intact adults. This package data object is a processed minute-level recording drawn from that collection.

Source

The Figshare collection from Chadwell (2019) doi:10.6084/m9.figshare.c.4457855.

References

Chadwell, A., Kenney, L., Granat, M., Thies, S., Galpin, A., & Head, J. (2019). Upper limb activity of twenty myoelectric prosthesis users and twenty healthy anatomically intact adults. *Scientific Data*, 6, 199. doi:10.1038/s41597-019-0211-6

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acti_plot_actogram *Plot an activity actogram*

Description

Displays minute-level activity as a date-by-time heat map using actibase day indexing and time-of-day conversion.

Usage

```
acti_plot_actogram(data, value, time = time, breaks = "4 hours", ...)
```

Arguments

`data`	Minute-level activity data.
`value`	Activity column, supplied unquoted or as a string.
`time`	Timestamp column.
`breaks`	Time-of-day axis break interval.
`...`	Arguments passed to ggplot2::geom_tile().

Value

A ggplot object.

---

acti_plot_minute_profile *Plot a minute-of-day activity profile*

Description

Plot a minute-of-day activity profile

Usage

```
acti_plot_minute_profile(
  data,
  value,
  time = time,
  summary = c("mean", "median"),
  ...
)
```

Arguments

`data`	Minute-level activity data.
`value`	Activity column, supplied unquoted or as a string.
`time`	Timestamp column.
`summary`	Either "mean" or "median".
`...`	Arguments passed to ggplot2::geom_tile().

Value

A ggplot object.

---

acti_plot_time *Plot minute-level activity over time*

Description

`acti_plot_time()` draws a time-series plot for a minute-level activity measure, such as steps or activity counts. `acti_plot_day()` aligns the data by time of day and places each date in its own facet row. `acti_plot_heatmap()` provides the same date-by-time layout as a heat map.

Usage

```
acti_plot_time(
  data,
  value,
  time = time,
  breaks = NULL,
  connector = c("linear", "step", "line"),
  x_axis = c("default", "12 hours", "midnight"),
  ...
)

acti_plot_day(
  data,
  value,
  time = time,
  breaks = "4 hours",
  connector = c("linear", "step", "line"),
  facet = c("date", "month-day", "day"),
  ...
)

acti_plot_heatmap(data, value, time = time, breaks = "4 hours", ...)
```

Arguments

`data`	A data frame containing a timestamp and an activity measure.
`value`	The activity-measure column, supplied unquoted or as a string. For example, `steps` or `"counts"`.
`time`	The timestamp column, supplied unquoted or as a string. It is `time` by default.
`breaks`	A single duration such as `"1 hour"`, `"4 hours"`, or `"15 mins"`. It controls x-axis spacing. Use `NULL` for ggplot2's default on the full-time plot or no specified breaks on aligned plots.
`connector`	Should a `geom_step` (`step`) or `geom_line` (`linear`/`line`) be used to connect points?
`x_axis`	The x-axis labelling scheme for `acti_plot_time()`. Use `"default"` to use `breaks` or `ggplot2`'s default; `"12 hours"` to show a date and 12-hour clock label every 12 hours; or `"midnight"` to label each date only at midnight. The latter two options set their own breaks.
`...`	Additional arguments passed to the primary geom.
`facet`	The facet labels for `acti_plot_day()`: `"date"` for the full date, `"month-day"` for a date without the year, or `"day"` for days since the first recording day (as calculated by `actibase::acti_separate_times()`).

Details

Data are prepared with `actibase::acti_separate_times()`, which recognizes the timestamp conventions used by activerse packages and adds date and time-of-day variables.

Value

A ggplot object.

Examples

```
# The first two hours of the packaged minute-level data.
activity <- acti_minute_data[seq_len(120), ]

acti_plot_time(activity, counts, breaks = "1 hour")
acti_plot_time(acti_minute_data, counts, x_axis = "12 hours")
acti_plot_time(acti_minute_data, counts, x_axis = "midnight")
acti_plot_day(activity, "counts", breaks = "1 hour")
acti_plot_heatmap(activity, counts, breaks = "1 hour")
```

geom_activity_rug *Add activity marks along a datetime axis*

Description

Add activity marks along a datetime axis

Usage

```
geom_activity_rug(data, time = "time", ...)
```

Arguments

data	Data containing a timestamp column.
time	Timestamp column name.
...	Arguments passed to ggplot2::geom_rug().

Value

A ggplot2 layer.

geom_day_boundary *Add conventional daily boundaries*

Description

Add conventional daily boundaries

Usage

```
geom_day_boundary(boundary = c("midnight", "noon"), ...)
```

Arguments

boundary	One of midnight or noon.
...	Arguments passed to geom_time_vline().

Value

A ggplot2 layer.

geom_episode — *Add timestamped episode intervals*

Description

Draws one or more timestamped intervals behind an activity trace. The input data must contain POSIXct start and end columns. This is the common layer underpinning sleep, wear, and activity-bout annotations.

Usage

```
geom_episode(data, start = "start", end = "end", ...)
```

Arguments

`data`	An interval data frame.
`start`, `end`	Names of POSIXct start and end columns.
`...`	Arguments passed to ggplot2::geom_rect().

Value

A ggplot2 layer.

geom_sleep_window — *Add sleep-window intervals*

Description

Add sleep-window intervals

Usage

```
geom_sleep_window(data, start = "start", end = "end", ...)
```

Arguments

`data`	An interval data frame.
`start`, `end`	Names of POSIXct start and end columns.
`...`	Arguments passed to ggplot2::geom_rect().

Value

A ggplot2 layer.

geom_threshold_band *Highlight activity observations beyond a threshold*

Description

Adds translucent vertical bands for timestamped observations above or below a threshold. It intentionally does not merge observations into bouts; use an explicit interval table with geom_episode() when episode definitions matter.

Usage

```
geom_threshold_band(
  data,
  value,
  threshold,
  direction = c("above", "below"),
  time = "time",
  ...
)
```

Arguments

data	A data frame with timestamp and numeric activity columns.
value	Numeric activity column name.
threshold	Numeric threshold.
direction	Whether to highlight values above or below the threshold.
time	Timestamp column name.
...	Arguments passed to ggplot2::geom_rect().

Value

A ggplot2 layer.

geom_time_vline *Add a time-aware vertical reference line*

Description

A convenience layer for ggplot2::geom_vline() that converts time inputs to actiplot time scales. A time of day such as "12:00" is drawn in every daily facet. A complete date-time is drawn at that instant on a full-time plot and only on its matching date facet in an aligned day plot.

Usage

```
geom_time_vline(xintercept, timezone = NULL, check_timezone = FALSE, ...)
```

Arguments

`xintercept`	A POSIXct date-time, an ISO-like date-time character string, or a time-of-day character string such as "08:30".
`timezone`	Time zone used to parse date-time character values. The timestamp time zone in the plot data is used when NULL.
`check_timezone`	If TRUE, date-time character values require an explicit timezone.
`...`	Arguments passed to ggplot2::geom_vline().

Value

A ggplot2 layer.

Examples

```
acti_plot_day(acti_minute_data, counts) +
  geom_time_vline("12:00", linetype = "dashed")

acti_plot_time(acti_minute_data, counts) +
  geom_time_vline("2017-06-05 09:30:00", timezone = "GMT")
```

`geom_wear` *Add wear intervals*

Description

Add wear intervals

Usage

```
geom_wear(data, start = "start", end = "end", ...)
```

Arguments

`data`	An interval data frame.
`start, end`	Names of POSIXct start and end columns.
`...`	Arguments passed to ggplot2::geom_rect().

Value

A ggplot2 layer.

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