

# Package: DrivePlotR (via r-universe)

June 10, 2026

**Title** Linked Plot Maps for Multivariate High-Resolution  
Spatio-Temporal Data

**Version** 0.1.9000

**Description** Create interactive, linked plot maps for multivariate high-resolution spatio-temporal data, such as vehicle trajectories. You can explore the spatial, temporal, and multivariate aspects of the data simultaneously.

**License** MIT + file LICENSE

**Encoding** UTF-8

**Roxygen** list(markdown = TRUE)

**RoxygenNote** 7.3.3

**Imports** leaflet (>= 2.2.2), plotly (>= 4.10.4), crosstalk, dplyr, ggplot2 (>= 3.5.2), htmltools, rlang (>= 1.1.6), viridisLite

**Depends** R (>= 4.1)

**LazyData** true

**URL** <https://hardtme.github.io/DrivePlotR/>,  
<https://github.com/hardtme/DrivePlotR>

**Suggests** testthat (>= 3.0.0), sf

**Config/testthat/edition** 3

**BugReports** <https://github.com/hardtme/DrivePlotR/issues>

**Config/pak/sysreqs** libabsl-dev cmake libgdal-dev gdal-bin libgeos-dev make libicu-dev libpng-dev libuv1-dev libssl-dev libproj-dev libsqlite3-dev libudunits2-dev

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

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drive7	<i>Blackbox-Driving Data for one drive</i>
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### Description

This dataset contains drive 7 from the dataset nds\_data.

### Usage

drive7

### Format

A tibble with 321 rows and 34 columns

**drive** integer, identifier for a drive; a drive is defined as the time between starting the car and turning it off again.

**time\_utc** POSIXct time stamp for each observation in UTC

**time\_cst** POSIXct time stamp for each observation in Central time

GPS-based measurements for each observation:

**gps\_elevation** numeric, elevation above sea-level (in m)

**gps\_heading** numeric, continuity-corrected direction of the car (in degrees with north at 0 degrees and increasing clockwise) as measured by GPS. The continuity correction takes the initial GPS heading and adds the cumulative sum of the changes in GPS heading for the subsequent observations.

**gps\_fix** numeric, value specifying the adequacy of the GPS fix, where 0 = no fix, 1 = time only, 2 = 2D fix, 3 = 3D fix. A gps\_fix of 3 is needed for good GPS data.

**gps\_sats** integer, the number of satellites covering a position.

**gps\_pdop** numeric, position dilution of precision, an overall GPS data quality measure (lower is better)

**gps\_hdop** numeric, horizontal dilution of precision, a GPS quality measure for latitude/longitude data (lower is better)

**gps\_vdop** numeric, vertical dilution of precision, a GPS quality measure for elevation data (lower is better)

**speed\_mph** numeric, speed of the vehicle (in miles per hour)

**speed\_source** character, the source of the reported speed, either "gps" or "obd"

**distance\_miles** numeric, distance traveled during a drive (in miles)

Measurements by the on-board gyroscope:

**accel\_x** numeric, measure of vehicle acceleration along the front-back (longitudinal) axis (in g)

**accel\_y** numeric, measure of vehicle acceleration along the right-left (lateral) axis (in g)

**accel\_z** numeric, measure of acceleration of the vehicle in the up-down plane (normal/yaw axis) (in g)

**accel\_event** numeric, sequential (over time) variable marking when consecutive acceleration values (absolute value of accel\_x/y) exceed a threshold of 0.35g for a minimum of 1 second

**accel\_event\_cat** character, severity categorization of acceleration event into low (0.35-0.44g), medium (0.45-0.59g), and high (>0.6g)

**gyro\_x** numeric, angular rotation rate about the right-to-left axis (in degrees/sec)

**gyro\_y** numeric, angular rotation rate about the forward-to-backward axis (in degrees/sec)

**gyro\_z** numeric, angular rotation rate about the up-to-down axis (in degrees/sec)

**gyro\_heading** numeric, calculated heading utilizing compass data and gyro data (in degrees with north at 0 degrees and increasing clockwise). Note that we use non-standard congruence classes for continuity of consecutive values. Due to errors in the raw gyro heading, we use the initial GPS heading value as the initial heading value and then subtract the cumulative sum of gyro\_z for the subsequent observations to calculate gyro\_heading.

**grav\_x** numeric, lateral gravity (in g)

**grav\_y** numeric, longitudinal gravity (in g)

**grav\_z** numeric, gravity (up-down) (in g)

**roll** numeric, angle about the forward-to-backward axis. 0 = level, positive = tilted to the left (in degrees)

**pitch** numeric, angle about the left-to-right axis where 0 = level, positive = tilted downward (i.e., vehicle going downhill) (in degrees)

**engine\_rpm** numeric, current engine revolutions per minute value

**engine\_throttle** numeric, engine throttle as a percentage (0-100%)

**cumulative\_drive\_dist\_mi** numeric, the cumulative distance driven in miles at each observation

**gps\_minute** factor, the minute component of the timestamp for each observation (00 to 59)

Raw heading measurements:

**gps\_heading\_raw** numeric, raw GPS heading without continuity correction (in degrees)

**gyro\_heading\_raw** numeric, raw gyro heading without continuity correction (in degrees)

GPS coordinates in a simple features column:

**geometry** list-column, simple features geometry column with geometry type POINT and CRS WGS84

driveplot

*Create a vehicle trajectory plot map***Description**

Create a vehicle trajectory plot map

**Usage**

```
driveplot(
  shareddata,
  lng = NULL,
  lat = NULL,
  x,
  ys,
  colorvar = NULL,
  maplabel = NA,
  colorpalette = NULL,
  fillopacity = 1,
  xlabel = NULL,
  ylabel = NULL,
  showlegend = TRUE,
  legendtitle = NULL,
  plottitle = NULL,
  spacing = 0.05,
  width = "100%",
  height = "100vh"
)
```

**Arguments**

shareddata	A SharedData object containing observations to be plotted.
lng	The bare (unquoted) column of shareddata containing longitude (only required if shareddata does not have a geometry column).
lat	The bare (unquoted) column of shareddata containing latitude (only required if shareddata does not have a geometry column)
x	The bare (unquoted) column from shareddata to be plotted on the horizontal axis.
ys	A vector or list of bare (unquoted) columns from shareddata to be plotted on the vertical axes of the companion graphs.
colorvar	The bare (unquoted) column in shareddata to which color should be mapped.
maplabel	An optional label for the map points.
colorpalette	The color palette for the plot; either a single color (e.g., "red") or one of the viridis color palettes compatible with leaflet. Run <code>leaflet_color_palettes()</code> to see the available options for viridis color palettes. If <code>colorvar</code> and <code>colorpalette</code>

	are both not provided, colorpalette defaults to blue. If colorvar is provided but colorpalette is not, colorpalette defaults to the color palette "viridis".
fillopcacity	The opacity of the fill of the map points (0 to 1).
xlabel	The label for the variable on the horizontal axis.
ylabels	A vector or list of labels for the vertical axes of the companion graphs. If provided, it should be the same length as ys.
showlegend	Show the plot legend (TRUE) or not (FALSE).
legendtitle	The title for the plot legend.
plottitle	The title for the plot map.
spacing	A value between 0 and 1 for the space between the companion graphs.
width	The width of the plot map, provided as a string with one of the following units: %, vh, vw, or px (e.g., "100%" or "400px")
height	The height of the plot map, provided as a string with one of the following units: %, vh, vw, or px (e.g., "100%" or "400px")

**Value**

A linked plot map.

**Examples**

```
library(crosstalk)
data(drive7)
shared_drive <- SharedData$new(drive7)

driveplot(
  shareddata = shared_drive,
  x = time_cst,
  ys = c(speed_mph, gyro_heading, gps_heading),
  colorvar = gyro_heading,
  maplabel = time_cst,
  colorpalette = "viridis",
  fillopcacity = 1,
  xlabel = "Time",
  ylabels = c(
    "Speed (mph)", "Gyro Heading (degrees)",
    "GPS Heading (degrees)"
  ),
  showlegend = TRUE,
  legendtitle = "Gyro Heading",
  plottitle = "A drive with points colored by gyro heading",
  height = "500px"
)
```

---

driveplot\_companion    *Make a single plotly scatter plot from shared drive data*

---

### Description

Make a single plotly scatter plot from shared drive data

### Usage

```
driveplot_companion(  
  shareddata,  
  x,  
  y,  
  colorvar = NULL,  
  colorpalette = NULL,  
  xlabel = NULL,  
  ylabel = NULL,  
  showlegend = TRUE,  
  legendtitle = NULL  
)
```

### Arguments

shareddata	A SharedData object containing observations to be plotted.
x	The bare (unquoted) column from shareddata to be plotted on the horizontal axis.
y	The bare (unquoted) column from shareddata to be plotted on the vertical axis.
colorvar	The bare (unquoted) column in shareddata to which color should be mapped.
colorpalette	The color palette for the plot; either a single color (e.g., "red") or one of the viridis color palettes compatible with leaflet. Run <code>leaflet_color_palettes()</code> to see the available options for viridis color palettes. If <code>colorvar</code> and <code>colorpalette</code> are both not provided, <code>colorpalette</code> defaults to blue. If <code>colorvar</code> is provided but <code>colorpalette</code> is not, <code>colorpalette</code> defaults to the color palette "viridis".
xlabel	The label for the variable on the horizontal axis.
ylabel	The label for the variable on the vertical axis.
showlegend	Show the plot legend (TRUE) or not (FALSE).
legendtitle	The title for the plot legend.

### Value

A plotly scatterplot.

**Examples**

```
library(crosstalk)
data(drive7)
shared_drive <- SharedData$new(drive7)

# Time series of speed
driveplot_companion(
  shareddata = shared_drive,
  x = time_cst,
  y = speed_mph
)

# Color points by direction of car
driveplot_companion(
  shareddata = shared_drive,
  x = time_cst,
  y = speed_mph,
  colorvar = gyro_heading,
  colorpalette = "viridis",
  xlabel = "Time",
  ylabel = "Speed (MPH)",
  showlegend = TRUE,
  legendtitle = "Gyro Heading"
)
```

---

driveplot\_companions *Make a stack of companion graphs from shared drive data*

---

**Description**

Make a stack of companion graphs from shared drive data

**Usage**

```
driveplot_companions(
  shareddata,
  x,
  ys,
  colorvar = NULL,
  xlabel = NULL,
  ylabels = NULL,
  colorpalette = NULL,
  showlegend = TRUE,
  legendtitle = NULL,
  spacing = 0.05,
  plotheight = "100vh"
)
```

**Arguments**

shareddata	A SharedData object containing observations to be plotted.
x	The bare (unquoted) column from shareddata to be plotted on the horizontal axis.
ys	A vector or list of bare (unquoted) columns from shareddata to be plotted on the vertical axes of the companion graphs.
colorvar	The bare (unquoted) column in shareddata to which color should be mapped.
xlabel	The label for the variable on the horizontal axis.
ylabels	A vector or list of labels for the vertical axes of the companion graphs. If provided, it should be the same length as ys.
colorpalette	The color palette for the plot; either a single color (e.g., "red") or one of the viridis color palettes compatible with leaflet. Run <code>leaflet_color_palettes()</code> to see the available options for viridis color palettes. If <code>colorvar</code> and <code>colorpalette</code> are both not provided, <code>colorpalette</code> defaults to blue. If <code>colorvar</code> is provided but <code>colorpalette</code> is not, <code>colorpalette</code> defaults to the color palette "viridis".
showlegend	Show the plot legend (TRUE) or not (FALSE).
legendtitle	The title for the plot legend.
spacing	A value between 0 and 1 for the space between the companion graphs.
plotheight	The height of the stack of companion graphs, e.g., "100vh" or "400px".

**Value**

A stack of plotly scatterplots.

**Examples**

```
library(crosstalk)
data(drive7)
shared_drive <- SharedData$new(drive7)

# Linked time series of speed, headings (in GPS and gyro), and GPS quality
driveplot_companions(
  shareddata = shared_drive,
  x = time_cst,
  ys = c(speed_mph, gyro_heading, gps_heading),
  colorvar = gps_pdop,
  xlabel = "Time",
  ylabels = c(
    "Speed (mph)", "Gyro Heading (degrees)",
    "GPS Heading (degrees)"
  ),
  colorpalette = "viridis",
  legendtitle = "GPS PDOP"
)
```

---

driveplot\_map      *Create a standalone map*

---

## Description

Create a standalone map

## Usage

```
driveplot_map(  
  shareddata,  
  lng = NULL,  
  lat = NULL,  
  colorvar = NULL,  
  label = NA,  
  colorpalette = NULL,  
  fillopacity = 1,  
  mapheight = "100vh"  
)
```

## Arguments

shareddata	A SharedData object containing observations to be plotted.
lng	The bare (unquoted) column of shareddata containing longitude (only required if shareddata does not have a geometry column).
lat	The bare (unquoted) column of shareddata containing latitude (only required if shareddata does not have a geometry column).
colorvar	The bare (unquoted) column in shareddata to which color should be mapped.
label	An optional label for the map points.
colorpalette	The color palette for the plot; either a single color (e.g., "red") or one of the viridis color palettes compatible with leaflet. Run <code>leaflet_color_palettes()</code> to see the available options for viridis color palettes. If colorvar and colorpalette are both not provided, colorpalette defaults to blue. If colorvar is provided but colorpalette is not, colorpalette defaults to the color palette "viridis".
fillopacity	The opacity of the fill of the map points (0 to 1).
mapheight	The height of the map, e.g., "100vh" or "400px".

## Value

A leaflet map.

**Examples**

```
library(crosstalk)
data(drive7)
shared_drive <- SharedData$new(drive7)

# Basic map of one drive
driveplot_map(shareddata = shared_drive)

# Color drive points by direction of car
driveplot_map(
  shareddata = shared_drive,
  colorvar = gyro_heading,
  label = gyro_heading,
  colorpalette = "viridis"
)
```

---

leaflet\_color\_palettes

*Vector of viridis color palettes supported by Leaflet*

---

**Description**

Helper function

**Usage**

```
leaflet_color_palettes()
```

**Details**

In a DrivePlotR plot map, the map uses the same color palette as the companion graphs.

**Value**

Vector of viridis color palettes supported by Leaflet.

**Examples**

```
leaflet_color_palettes()
```

---

nds\_data                      *Blackbox-Driving Data for a number of drives*

---

### Description

This dataset contains 28 drives ranging in length from just over 2 hours to just 45 secs.

### Usage

nds\_data

### Format

A tibble with 23187 rows and 35 columns

**drive** integer, identifier for a drive; a drive is defined as the time between starting the car and turning it off again.

**time\_utc** POSIXct time stamp for each observation in UTC

**time\_cst** POSIXct time stamp for each observation in Central time

GPS-based measurements for each observation:

**gps\_long** numeric, geographic longitude in degrees with CRS WGS84

**gps\_lat** numeric, geographic latitude in degrees with CRS WGS84

**gps\_elevation** numeric, elevation above sea-level (in m)

**gps\_heading** numeric, continuity-corrected direction of the car (in degrees with north at 0 degrees and increasing clockwise) as measured by GPS. The continuity correction takes the initial GPS heading and adds the cumulative sum of the changes in GPS heading for the subsequent observations.

**gps\_fix** numeric, value specifying the adequacy of the GPS fix, where 0 = no fix, 1 = time only, 2 = 2D fix, 3 = 3D fix. A `gps_fix` of 3 is needed for good GPS data.

**gps\_sats** integer, the number of satellites covering a position.

**gps\_pdop** numeric, position dilution of precision, an overall GPS data quality measure (lower is better)

**gps\_hdop** numeric, horizontal dilution of precision, a GPS quality measure for latitude/longitude data (lower is better)

**gps\_vdop** numeric, vertical dilution of precision, a GPS quality measure for elevation data (lower is better)

**speed\_mph** numeric, speed of the vehicle (in miles per hour)

**speed\_source** character, the source of the reported speed, either "gps" or "obd"

**distance\_miles** numeric, distance traveled during a drive (in miles)

Measurements by the on-board gyroscope:

**accel\_x** numeric, measure of vehicle acceleration along the front-back (longitudinal) axis (in g)

**accel\_y** numeric, measure of vehicle acceleration along the right-left (lateral) axis (in g)

**accel\_z** numeric, measure of acceleration of the vehicle in the up-down plane (normal/yaw axis) (in g)

**accel\_event** numeric, sequential (over time) variable marking when consecutive acceleration values (absolute value of accel\_x/y) exceed a threshold of 0.35g for a minimum of 1 second

**accel\_event\_cat** character, severity categorization of acceleration event into low (0.35-0.44g), medium (0.45-0.59g), and high (>0.6g)

**gyro\_x** numeric, angular rotation rate about the right-to-left axis (in degrees/sec)

**gyro\_y** numeric, angular rotation rate about the forward-to-backward axis (in degrees/sec)

**gyro\_z** numeric, angular rotation rate about the up-to-down axis (in degrees/sec)

**gyro\_heading** numeric, calculated heading utilizing compass data and gyro data (in degrees with north at 0 degrees and increasing clockwise). Note that we use non-standard congruence classes for continuity of consecutive values. Due to errors in the raw gyro heading, we use the initial GPS heading value as the initial heading value and then subtract the cumulative sum of gyro\_z for the subsequent observations to calculate gyro\_heading.

**grav\_x** numeric, lateral gravity (in g)

**grav\_y** numeric, longitudinal gravity (in g)

**grav\_z** numeric, gravity (up-down) (in g)

**roll** numeric, angle about the forward-to-backward axis. 0 = level, positive = tilted to the left (in degrees)

**pitch** numeric, angle about the left-to-right axis where 0 = level, positive = tilted downward (i.e., vehicle going downhill) (in degrees)

**engine\_rpm** numeric, current engine revolutions per minute value

**engine\_throttle** numeric, engine throttle as a percentage (0-100%)

**cumulative\_drive\_dist\_mi** numeric, the cumulative distance driven in miles at each observation

**gps\_minute** factor, the minute component of the timestamp for each observation (00 to 59)

Raw heading measurements:

**gps\_heading\_raw** numeric, raw GPS heading without continuity correction (in degrees)

**gyro\_heading\_raw** numeric, raw gyro heading without continuity correction (in degrees)

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