

Interactive rstats - UAB Biostatistics 626

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October 11, 2016

Will I Ever Use This Again?

I do!

almost every day

Companies

Twitter

Google

Microsoft

Uber

...

Prominent Sightings

New York Times

FT

Economist

FiveThirtyEight

From Static to Interactive

Interactivity improves

- Exploration
- Storytelling and Communication
- Engagement

and is **becoming an expectation**.

htmlwidgets

htmlwidgets

gallery of htmlwidgets

77 registered widgets available to explore

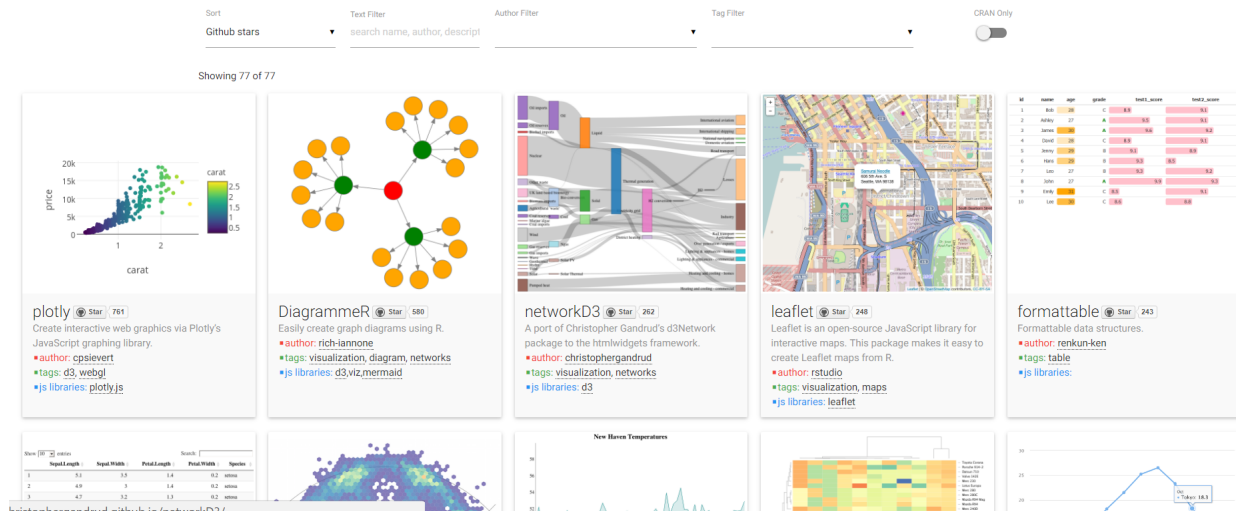


Figure 1: screenshot of htmlwidgets gallery

Examples

Interactive ggplot2

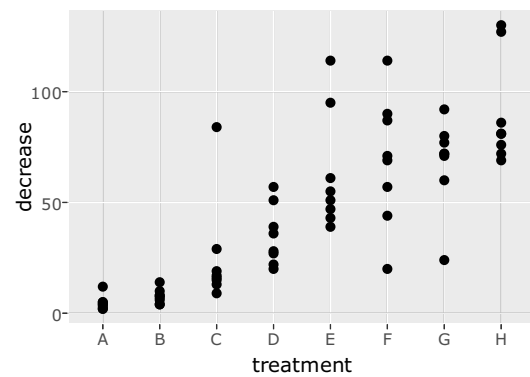
plotly

ggiraph

ggiraph in print

Some plotly code

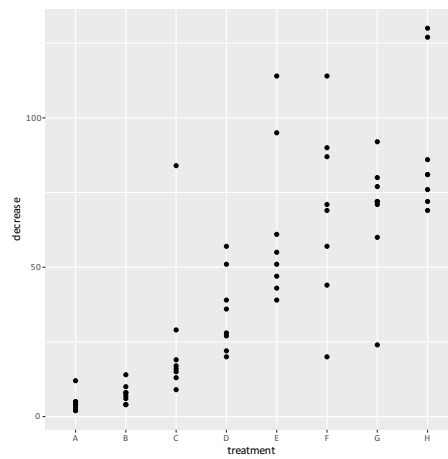
```
library(plotly)
ggplotly(
  ggplot(OrchardSprays, aes(x=treatment, y=decrease)) +
    geom_point(),
  width = 400, height = 300
)
```



Some ggiraph code

```
library(ggiraph)

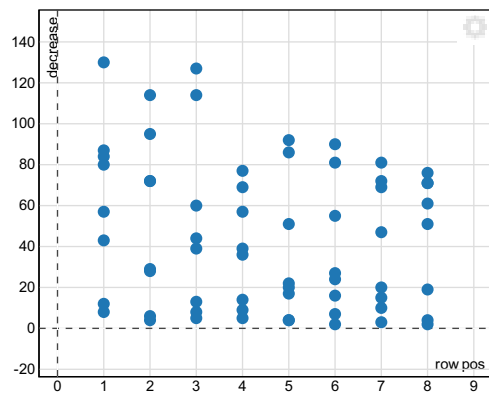
ggp <- ggplot(OrchardSprays, aes(x=treatment, y=decrease)) +
  geom_point_interactive(aes(tooltip=decrease))
ggiraph(code = print(ggp), width=0.4)
```



Same in scatterD3

```
library(scatterD3)

scatterD3(
  x=rowpos, y=decrease, data=OrchardSprays,
  lasso=TRUE, width=400, height=300)
```



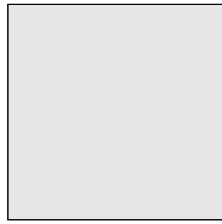
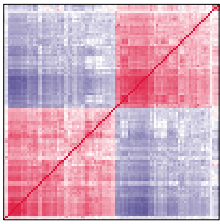
a litte more biostats-y

qtlcharts

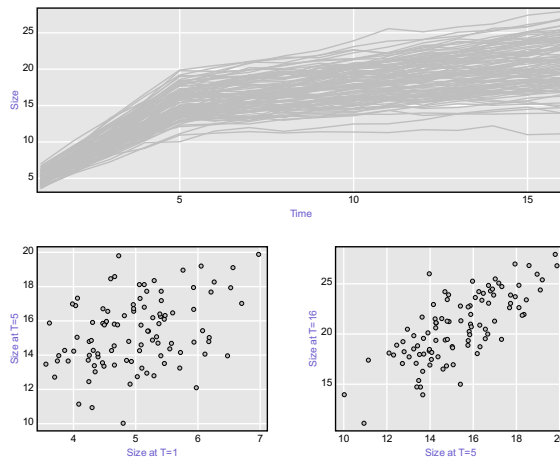
```
library(qtlcharts)
data(geneExpr)
ipc <- iplotCorr( geneExpr$expr, geneExpr$genotype, reorder=TRUE
,chartOpts=list( height = 400, width = 800 )
)
```

qtlcharts iplotCorr

ipc



more qtlcharts



pivot tables

```
library(rpivotTable)

rpivotTable(OrchardSprays, height=400)
```

| | |
|---------|---|
| Table ▾ | decrease * rowspos * colpos * treatment * |
| Count ▾ | |
| | total 44 |

parallel coordinates

```
library(parcoords)
pc <- parcoords(
  OrchardSprays, brushMode="1d", reorderable=TRUE,
  rownames=FALSE, color=list(colorBy="treatment",colorScale=htmlwidgets::JS("d3.scale.category10()"))
)
```

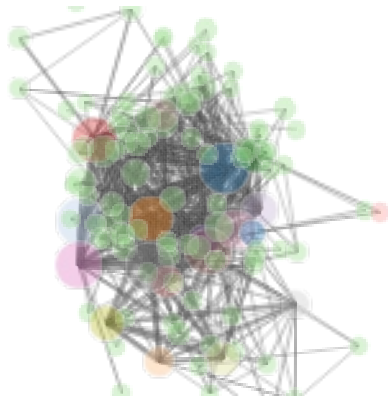
networkD3

```
library(networkD3)
#thanks Evelina Gabasova
#http://evelinag.com/blog/2015/12-15-star-wars-social-network/#.V_zauvArI2y
network <- jsonlite::fromJSON(
  "https://cdn.rawgit.com/evelinag/StarWars-social-network/master/networks/starwars-full-interactions-a"
)

fn <- forceNetwork(
  Links = network$links, Nodes = network$nodes,
  Source = "source", Target = "target", NodeID = "name",
  Value = "value", Nodesize = "value",
  Group = "colour", zoom = TRUE, linkDistance = 100, charge = -25
)
```

Star Wars force

```
fn
```

3d

plotly, rthreejs, and rgl

Webgl is not supported by your
browser - visit
<http://get.webgl.org> for more
info

sunburst

```
library(sunburstR)
sequences <- read.csv(
  system.file("examples/visit-sequences.csv", package="sunburstR")
, header = FALSE
, stringsAsFactors = FALSE
)

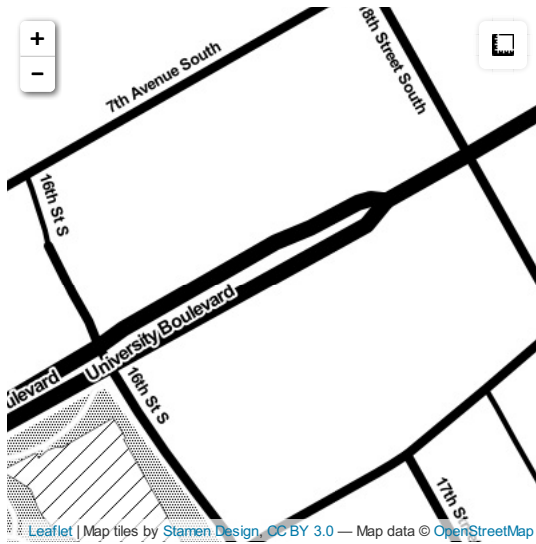
htmltools::tags$div(
  style = "background-color:white; text-align:right;",
  sunburst(sequences)
)
```

Legend

maps

```
library(leaflet)
leaflet( width = 400, height = 400) %>%
  addProviderTiles("Stamen.Toner") %>%
```

```
setView( -86.8034743, 33.5025432, zoom=17) %>%  
addMeasure()
```



HTML/CSS/JS in R

Manual Hard Way

```
cat(  
  '  
  
<!DOCTYPE html>  
<html>  
<head>  
<meta charset="utf-8"/>  
  
</head>  
<body style="background-color:white;">
```

```
<h1>HTML in R</h1>
</body>
</html>
',
  file="manual_html.html"
)
rstudioapi::viewer("manual_html.html")
```

htmltools

```
library(htmltools)

browsable(tags$h1("HTML in R"))
```

100 available tags
code

Rmarkdown/markdown

rmarkdown

The previous example would look like this in `rmarkdown`.

```
# HTML in R
```

This presentation built entirely in `rmarkdown`.

Back and Forth

Methods

Shiny | R <-> HTML/CSS/JS

crosstalk (experimental) | R -> HTML/CSS/JS <-> HTML/CSS/JS

?? - no agreed upon standard yet