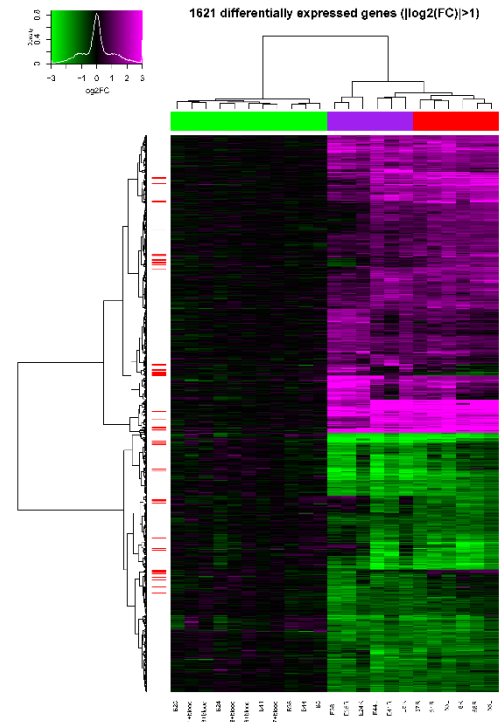
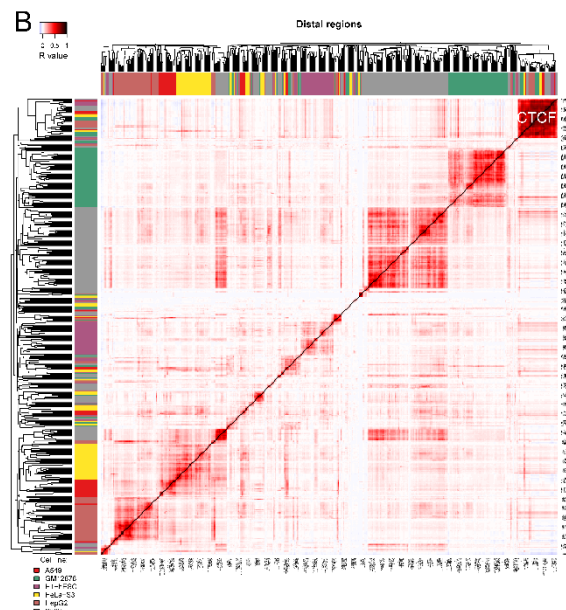


Interactive heatmaps in R with *d3heatmap* and *plotly*

Guillaume Devailly
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EdinbR



- 2D, colour-coded, visualisations of numeric matrix
- Usually done with *heatmap()*, *heatmap.2()*, *pheatmap()* or *image()*
- Super-useful to display big datasets
- Can somehow be achieved by ggplot2, but no one does that.



Example datasets:

```
data( "Harman23.cor" )
```

Description

A correlation matrix of eight physical measurements on 305 girls between ages seven and seventeen.

```
data( "volcano" )
```

Description

Maunga Whau (Mt Eden) is one of about 50 volcanos in the Auckland volcanic field. This data set gives topographic information for Maunga Whau on a 10m by 10m grid.

Heatmap with d3heatmap

- CRAN package by Rstudio
- Is an *htmlwidget*
- Inspired by *heatmap()* and *heatmap.2()*

```
install.packages("d3heatmap")
```

```
d3heatmap(Harman23.cor$cov)
```

```
d3heatmap(volcano,  
           Rowv = FALSE,  
           Colv = FALSE,  
           dendrogram = "none",  
           colors = topo.colors(50)  
)
```

[Link 1!](#)

[Link 2!](#)

Heatmap with d3heatmap

- Freeze browsers with large heatmap (500 x 500)
- How to save as a .html object with script?
- No “breaks” parameter
- No built-in colour legend
- *Shiny* compatible!

Heatmap with plotly



- Canadian private company: <https://plot.ly/>
- API with everything: Python, R, Excel, Matlab, Julia, Igor Pro, Spotfire, Javascript, Node.js, Ruby, GO, F#, Arduino, Raspberry + write your own API
- Free to use, but requires registration
- Automatically upload and host your plots on *plotly* website (unless used in *Shiny*)
- Many different kinds of plots

Heatmap with d3heatmap

```
install.packages("viridis")  
install.packages("devtools")  
devtools::install_github("ropensci/plotly")
```

```
Sys.setenv("plotly_username" = "your_plotly_username")  
Sys.setenv("plotly_api_key" = "your_api_key")
```

```
plot_ly(z = Harman23.cor$cov,  
        x = colnames(Harman23.cor$cov),  
        y = rownames(Harman23.cor$cov),  
        colorscale = list(  
            c(0, "rgb(255,255,255)"),  
            c(1, "rgb(255,0,0)")  
        ),  
        zmin = 0,  
        zmax = 1,  
        type = "heatmap"  
)
```

```
# Success! Created a new plotly here ->  
https://plot.ly/~gdevailly/118
```

[Link 3!](#)

Heatmap with plotly



- Unfriendly syntax
- No built-in clustering
- Built-in colour legend
- *Shiny* compatible!

Performance test on big matrices:



[Link 4!](#)
(source code)

d3heatmap



- R-friendly syntax
- In development



- R-unfriendly syntax

Alternative:

rCharts highcharts

[Link 5!](#)

- Even less friendly than plotly
- Slower with big dataset
- No registration
- Export a standalone *.html* page with script!