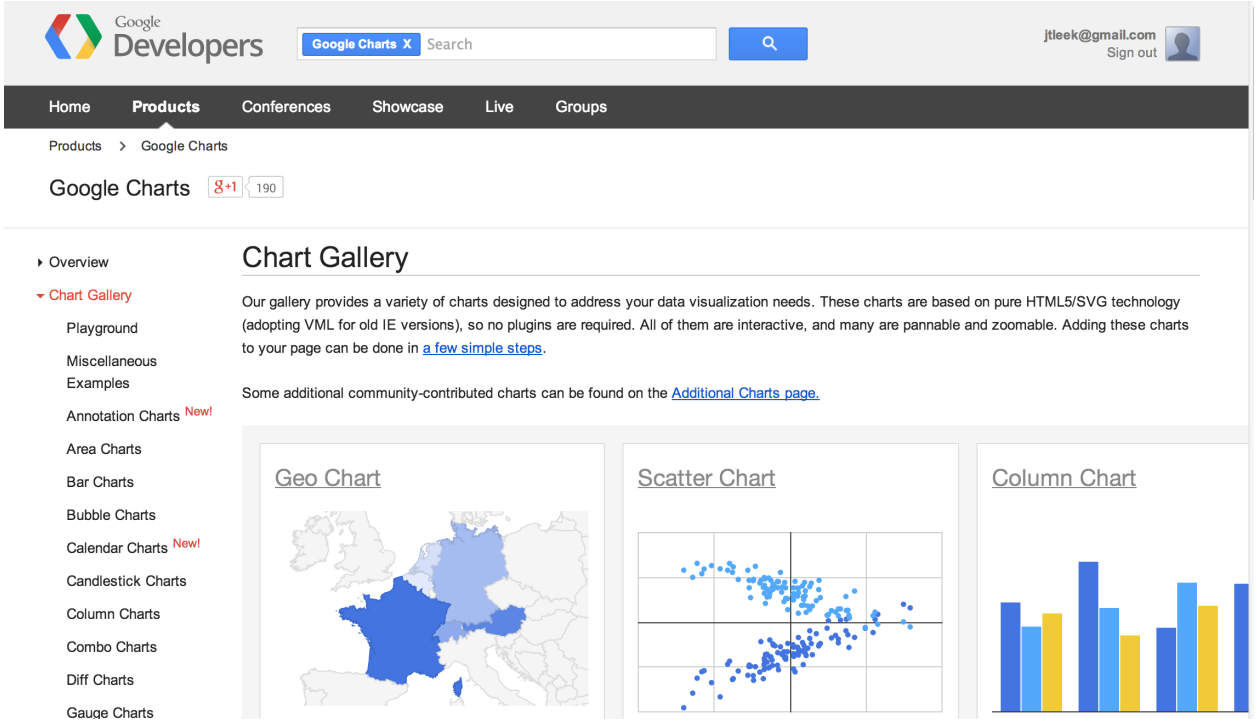
# googleVis

## Data Products

**Brian Caffo, Jeff Leek, Roger Peng**
**Johns Hopkins Bloomberg School of Public Health**

# Google Vis API




https://developers.google.com/chart/interactive/docs/gallery

# Basic idea

- The R function creates an HTML page
- The HTML page calls Google Charts
- The result is an interactive HTML graphic

# Example

```
suppressPackageStartupMessages(library(googleVis))
```

```
## Warning: package 'googleVis' was built under R version 3.0.3
```

```
M <- gvisMotionChart(Fruits, "Fruit", "Year", options = list(width = 600, height = 400))
print(M, "chart")
```

# Charts in googleVis

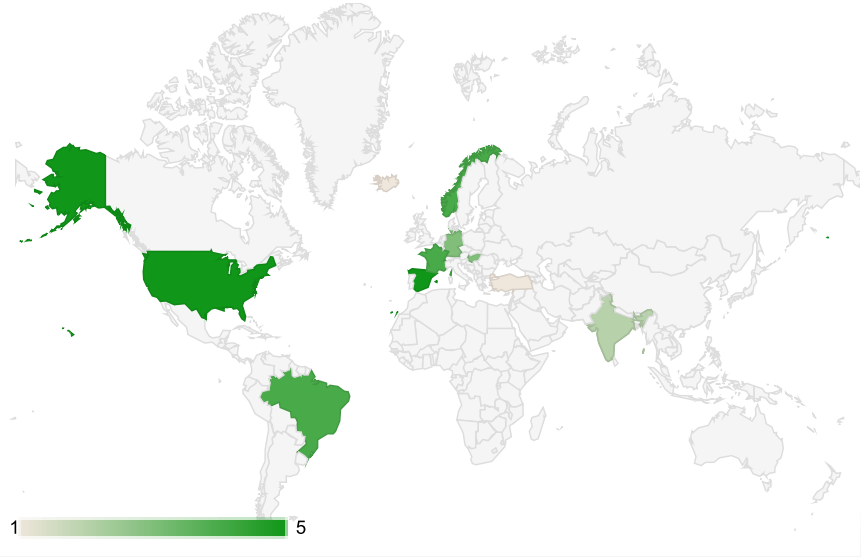
"gvis + ChartType"

- Motion charts: `gvisMotionChart`
- Interactive maps: `gvisGeoChart`
- Interactive tables: `gvisTable`
- Line charts: `gvisLineChart`
- Bar charts: `gvisColumnChart`
- Tree maps: `gvisTreeMap`

http://cran.r-project.org/web/packages/googleVis/googleVis.pdf

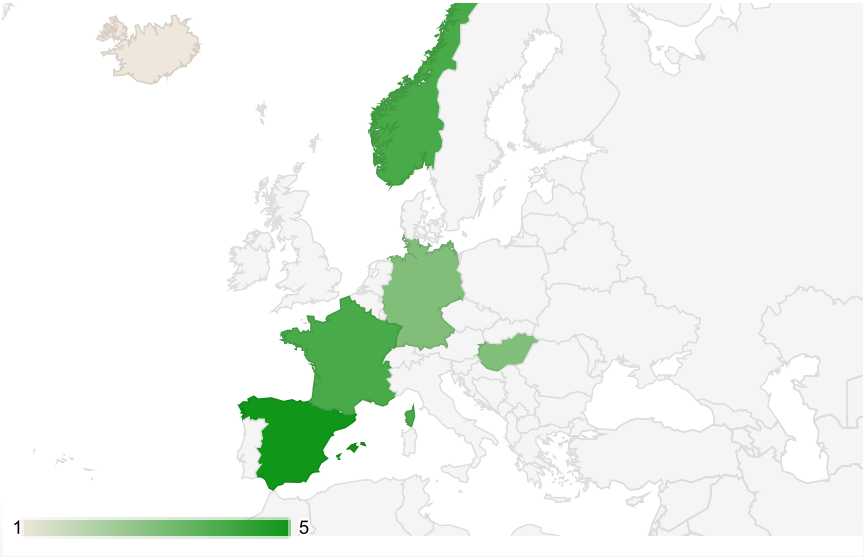
# Plots on maps

```
G <- gvisGeoChart(Exports, locationvar = "Country", colorvar = "Profit", options = list(width = 600,
    height = 400))
print(G, "chart")
```



# Specifying a region

```
G2 <- gvisGeoChart(Exports, locationvar = "Country", colorvar = "Profit", options = list(width = 600,
    height = 400, region = "150"))
print(G2, "chart")
```



# Finding parameters to set under `options`

## Configuration Options

| Name | Type | Default | Description |
|---|---|---|---|
| backgroundColor | string or object | white | The background color for the main area of the chart. Can be either a simple HTML color string, for example: `'red'` or `'#00cc00'`, or an object with the following properties. |
| backgroundColor.fill | string | white | The chart fill color, as an HTML color string. |
| backgroundColor.stroke | string | '#666' | The color of the chart border, as an HTML color string. |
| backgroundColor.strokeWidth | number | 0 | The border width, in pixels. |
| colorAxis | Object | null | An object that specifies a mapping between color column values and colors or a gradient scale. To specify properties of this object, you can use object literal notation, as shown here: `{minValue: 0,  colors: ['#FF0000', '#00FF00']}` |
| colorAxis.minValue | number | Minimum value of color column in chart | If present, specifies a minimum value for chart color data. Color data values of this value and lower will be rendered as the first color in the |

https://developers.google.com/chart/interactive/docs/gallery/geochart

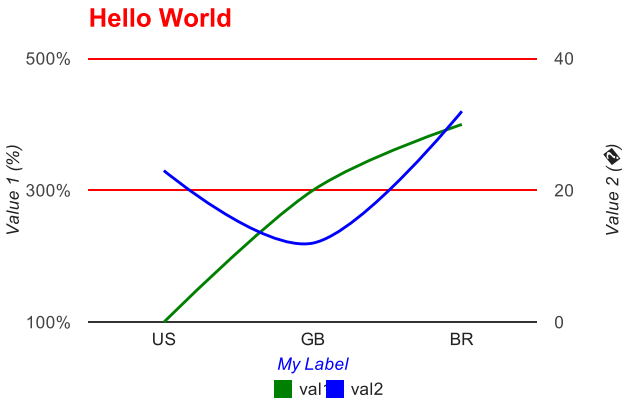
# Setting more options

```
df <- data.frame(label=c("US", "GB", "BR"), val1=c(1,3,4), val2=c(23,12,32))
Line <- gvisLineChart(df, xvar="label", yvar=c("val1","val2"),
        options=list(title="Hello World", legend="bottom",
                titleTextStyle="{color:'red', fontSize:18}",
                vAxis="{gridlines:{color:'red', count:3}}",
                hAxis="{title:'My Label', titleTextStyle:{color:'blue'}}",
                series="[{color:'green', targetAxisIndex: 0},
                         {color: 'blue',targetAxisIndex:1}]",
                vAxes="[{title:'Value 1 (%)', format:'##,######%'},
                                 {title:'Value 2 (\U00A3)'}]",
                curveType="function", width=500, height=300
                ))
```

https://github.com/mages/Introduction_to_googleVis/blob/gh-pages/index.Rmd

# Setting more options

```
print(Line, "chart")
```



# Combining multiple plots together

```
G <- gvisGeoChart(Exports, "Country", "Profit",options=list(width=200, height=100))
T1 <- gvisTable(Exports,options=list(width=200, height=270))
M <- gvisMotionChart(Fruits, "Fruit", "Year", options=list(width=400, height=370))
GT <- gvisMerge(G,T1, horizontal=FALSE)
GTM <- gvisMerge(GT, M, horizontal=TRUE,tableOptions="bgcolor=\"#CCCCCC\" cellspacing=10")
```

# Combining multiple plots together

```
print(GTM, "chart")
```

# Seeing the HTML code

```
M <- gvisMotionChart(Fruits, "Fruit", "Year", options = list(width = 600, height = 400))
print(M)
```

```
## <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"
##   "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">
## <html xmlns="http://www.w3.org/1999/xhtml">
## <head>
## <title>MotionChartID23187d102a5b</title>
## <meta http-equiv="content-type" content="text/html;charset=utf-8" />
## <style type="text/css">
## body {
##   color: #444444;
##   font-family: Arial,Helvetica,sans-serif;
##   font-size: 75%;
##   }
##   a {
##   color: #4D87C7;
##   text-decoration: none;
## }
## </style>
```

# Things you can do with Google Vis

- The visualizations can be embedded in websites with HTML code
- Dynamic visualizations can be built with Shiny, Rook, and R.rsp
- Embed them in R markdown based documents
  - Set `results="asis"` in the chunk options
  - Can be used with knitr and slidify

# For more info

```
demo(googleVis)
```

- http://cran.r-project.org/web/packages/googleVis/vignettes/googleVis.pdf
- http://cran.r-project.org/web/packages/googleVis/googleVis.pdf
- https://developers.google.com/chart/interactive/docs/gallery
- https://developers.google.com/chart/interactive/faq