

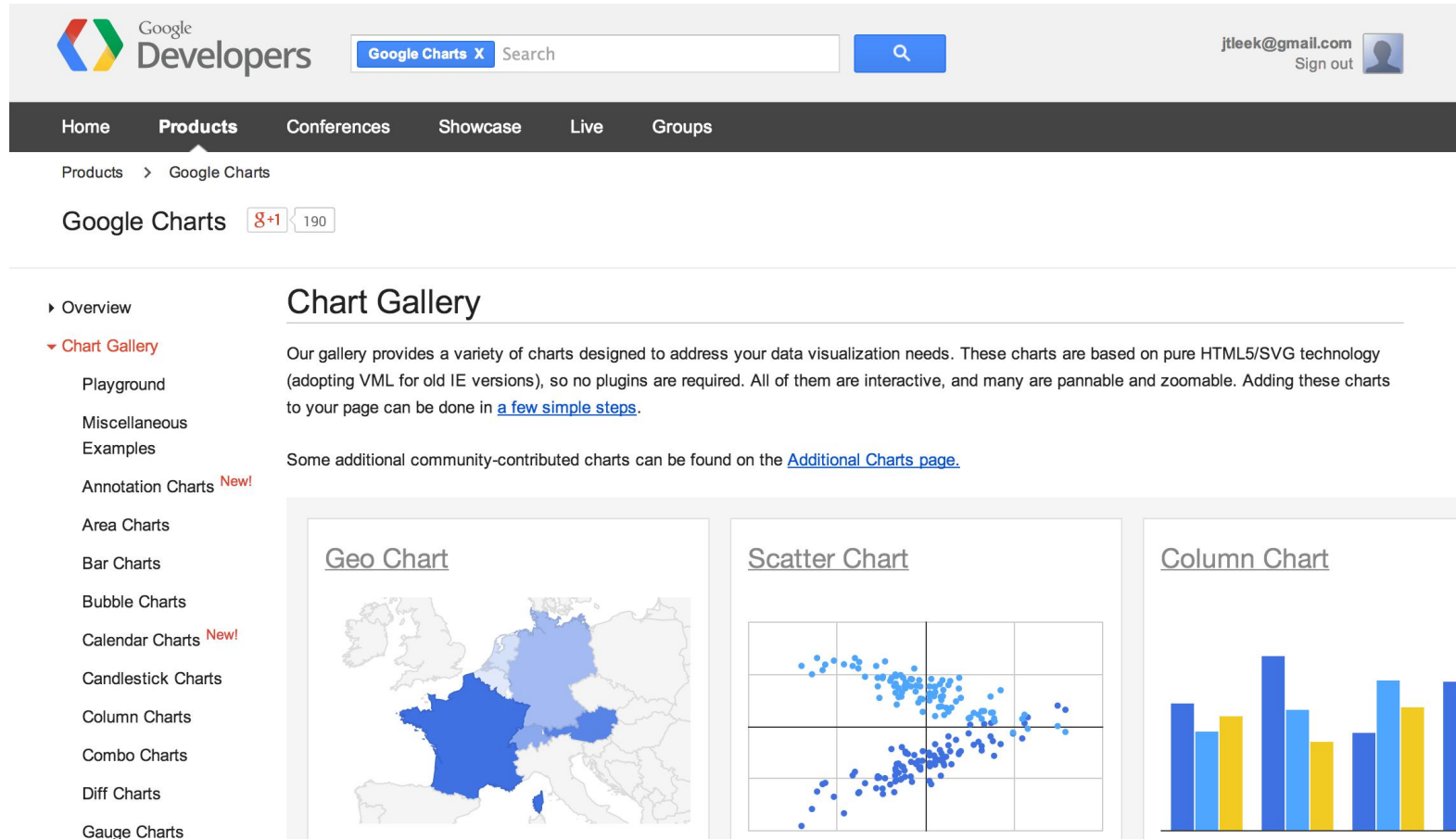


# googleVis

Data Products

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

# Google Vis API



The screenshot shows the Google Developers website for Google Charts. At the top, there's a header with the Google Developers logo, a search bar containing "Google Charts X", and a user profile for "jtleek@gmail.com" with a "Sign out" link. Below the header is a navigation bar with links for Home, Products, Conferences, Showcase, Live, and Groups. The "Products" link is active, and a breadcrumb trail shows "Products > Google Charts". Below this, the "Google Charts" title is followed by a Google+ badge showing "g+1" and "190".

On the left side, there's a sidebar menu with the following items: Overview, Chart Gallery (expanded), Playground, Miscellaneous, Examples, Annotation Charts (marked as "New!"), Area Charts, Bar Charts, Bubble Charts, Calendar Charts (marked as "New!"), Candlestick Charts, Column Charts, Combo Charts, Diff Charts, and Gauge Charts.

The main content area is titled "Chart Gallery". It contains a paragraph explaining that the gallery provides various charts for data visualization, based on pure HTML5/SVG technology, with no plugins required. It mentions that all charts are interactive and many are pannable and zoomable. A link "a few simple steps" is provided for adding charts. Below this, a link "Additional Charts page" points to community-contributed charts.

Three chart examples are displayed in a row:

- Geo Chart**: A map of Europe with France highlighted in dark blue and other countries in light blue.
- Scatter Chart**: A scatter plot with a grid background, showing a positive correlation between two variables with blue data points.
- Column Chart**: A bar chart with a grid background, showing data for six categories. The bars are colored blue and yellow, with heights varying across the categories.

<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

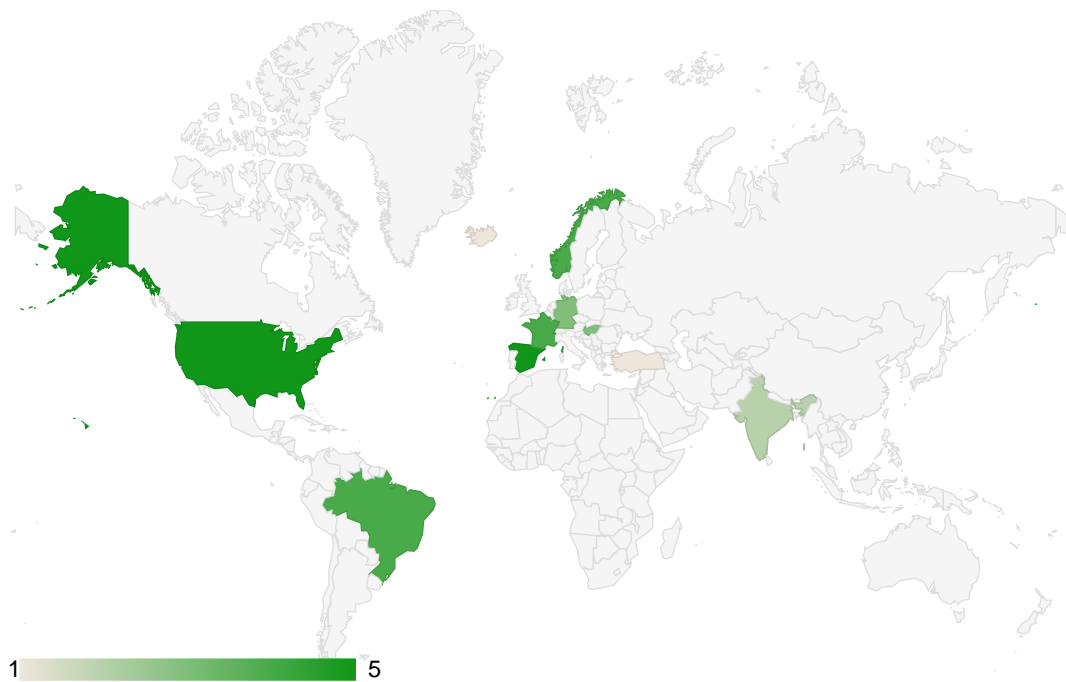
"gvis + ChartType"

- 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>

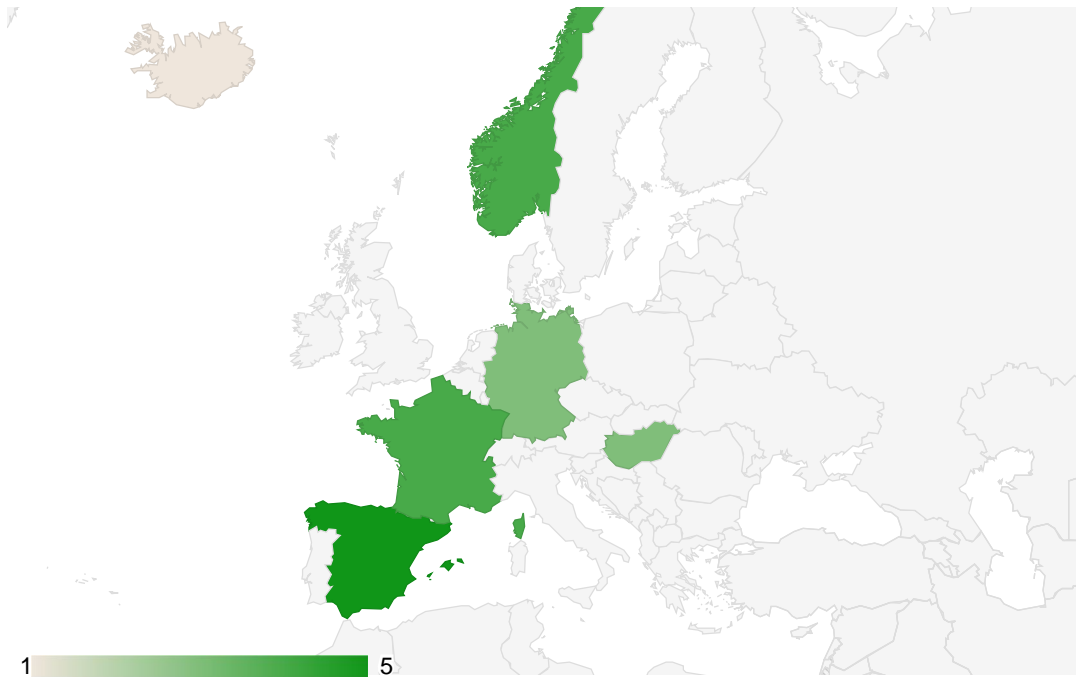
# Plots on maps

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



# Specifying a region

```
G2 <- gvisGeoChart(Exports, locationvar = "Country", colorvar = "Profit", options = list(width =  
  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: <pre>{minValue: 0, colors: ['#FF0000', '#00FF00']}</pre>
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>



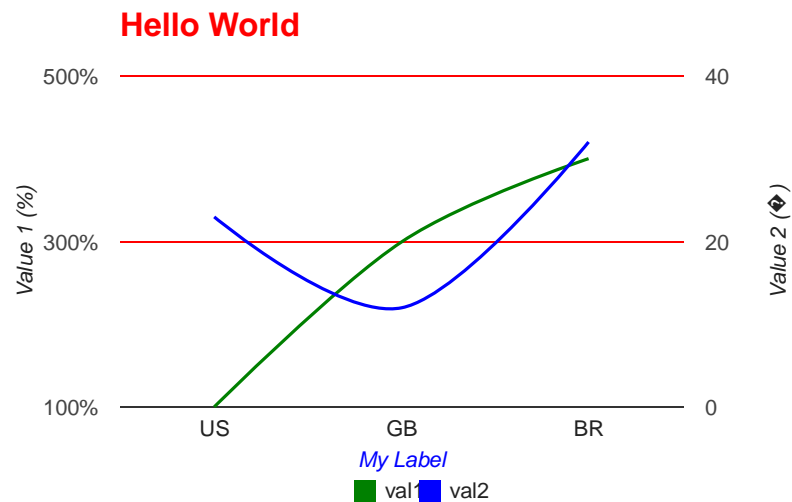
# Setting more options

```
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](https://github.com/mages/Introduction_to_googleVis/blob/gh-pages/index.Rmd)

# Setting more options

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

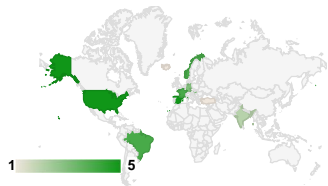


# Combining multiple plots together

```
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")
```



Country	Profit	Or
Germany	3	
Brazil	4	
United States	5	
France	4	
Hungary	3	

# 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>
## </head>
## <body>
```

# 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>