



# Introduction to Data Visualization

Santiago Paiva

**ConFoo.CA**  
WEB TECHNO CONFERENCE

# Presentation Overview

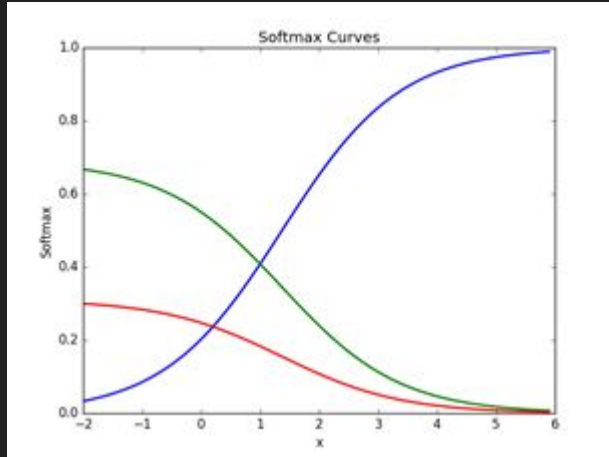
- Introduction (4 min)
- Part 1: **D3** (8 min)
- Part 2: **HighCharts** (8 min)
- Part 3: **Google Visualizations** (10 min)
- Part 4: **Grafana** (4 min)
- Conclusion (1 min)
- Q & A (10 min)

Slides: <http://www.github.com/spaiva/confoo-2017>

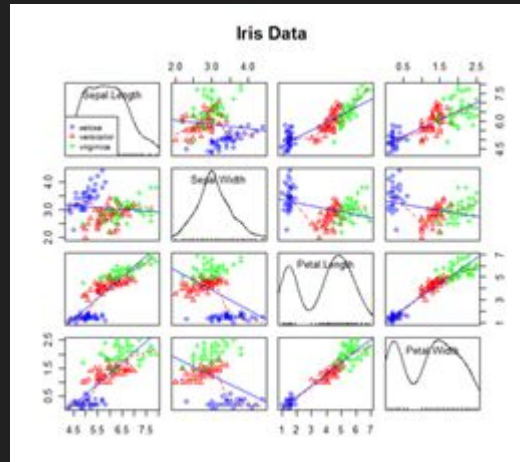
# About Me

- Currently @ Montreal Neurological Institute & Hospital (The Neuro)
- Startups (Busbud, Frank + Oak, Sharethebus)
- Research (Polytechnique, McGill, MIT)
- Confoo
  - 2014: <http://www.github.com/spaiva/confoo-2014>
  - 2016: <http://github.com/spaiva/confoo-2016>

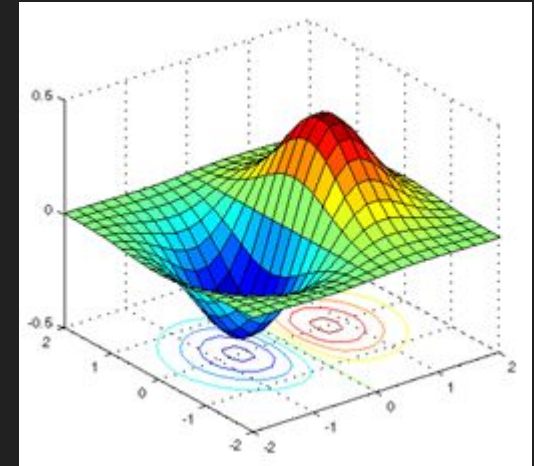
# Python, R, and MATLAB



<http://www.github.com/spaiva/deep-learning>



<http://www.statmethods.net/advgraphs/>



<http://www.matlab.izmiran.ru>

# Trump Sounds a Different Tone in First Address to Congress

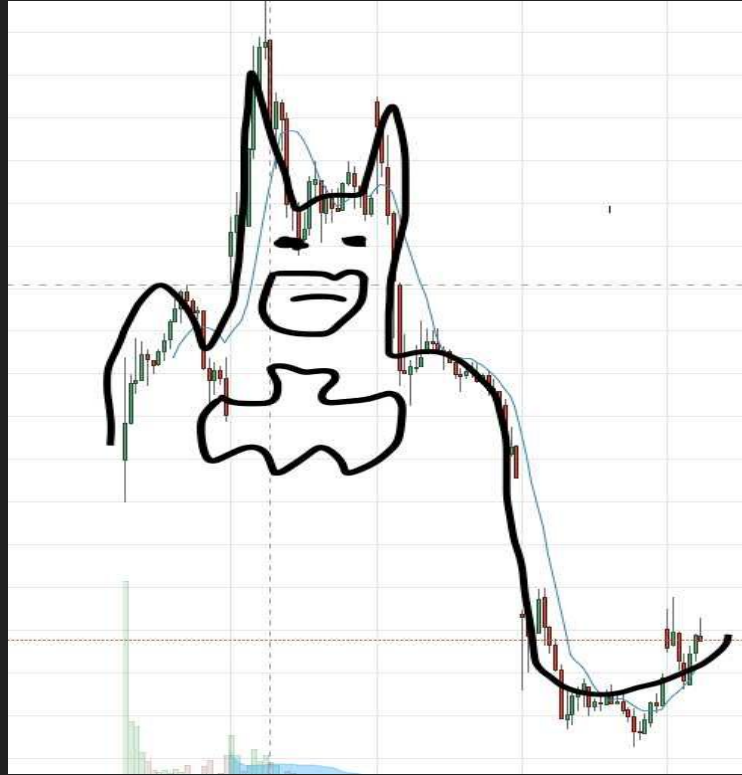
Mr. Trump's address to Congress was closer in tone to a typical State of the Union address than it was to his previous public statements as president.



By JOSH KATZ and GREGOR AISCH

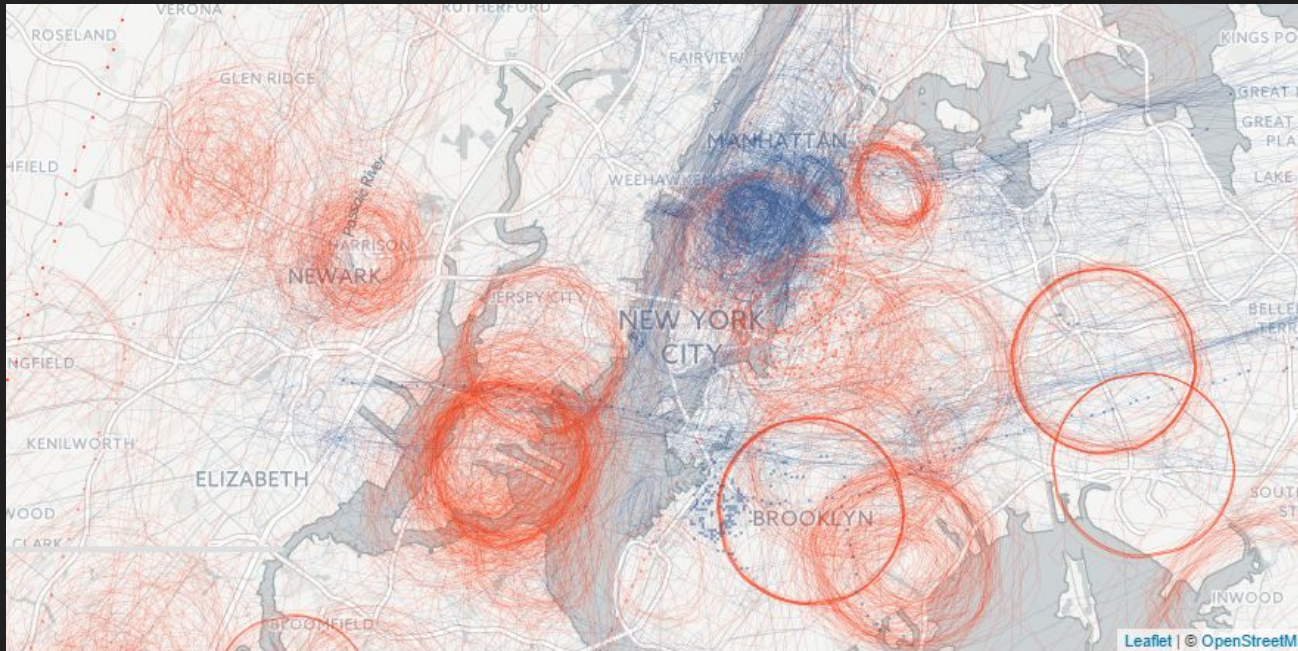
FEB. 28, 2017, New York Times

# Snap Inc. (SNAP)



<https://twitter.com/StockTwits/status/839591749274128384/photo/1>

# “Spies in the Skies”



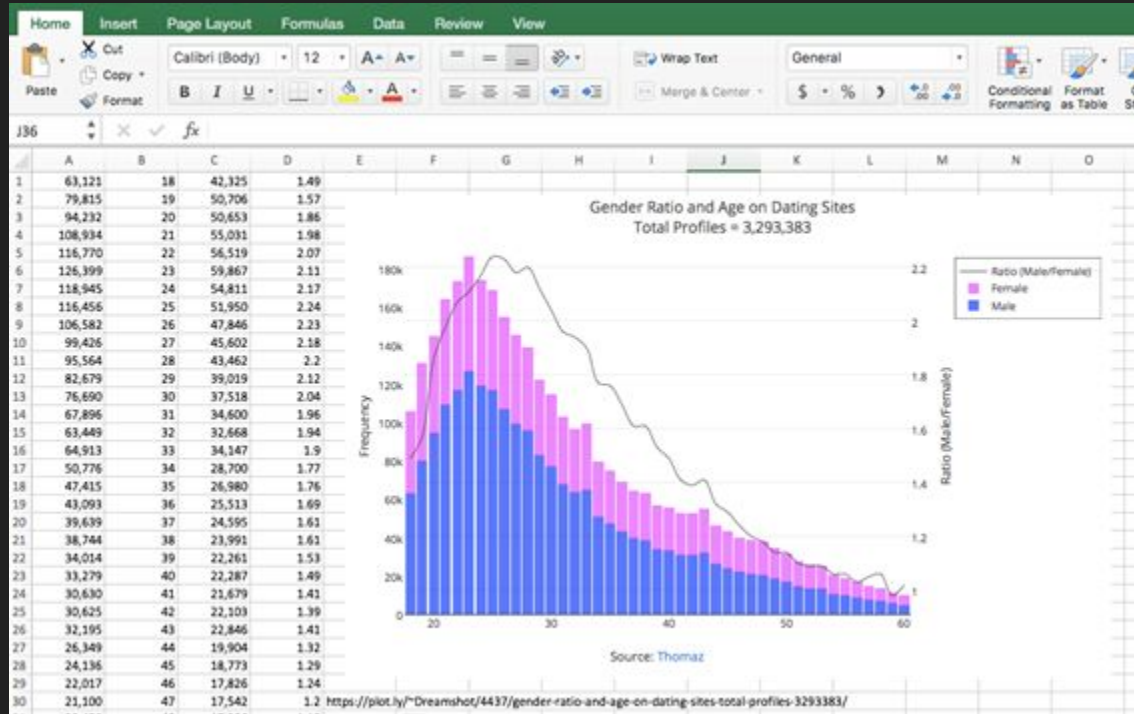
■ FBI ■ DHS

PETER ALDHOUS / BUZZFEED NEWS

<https://www.buzzfeed.com/peteraldhous/spies-in-the-skies>



# Excel Still Important

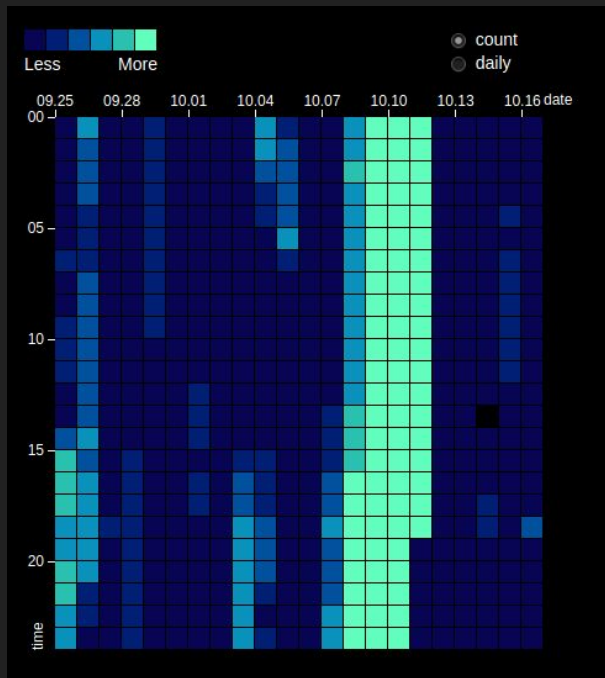


<http://help.plot.ly/excel/graph-with-multiple-axes/>

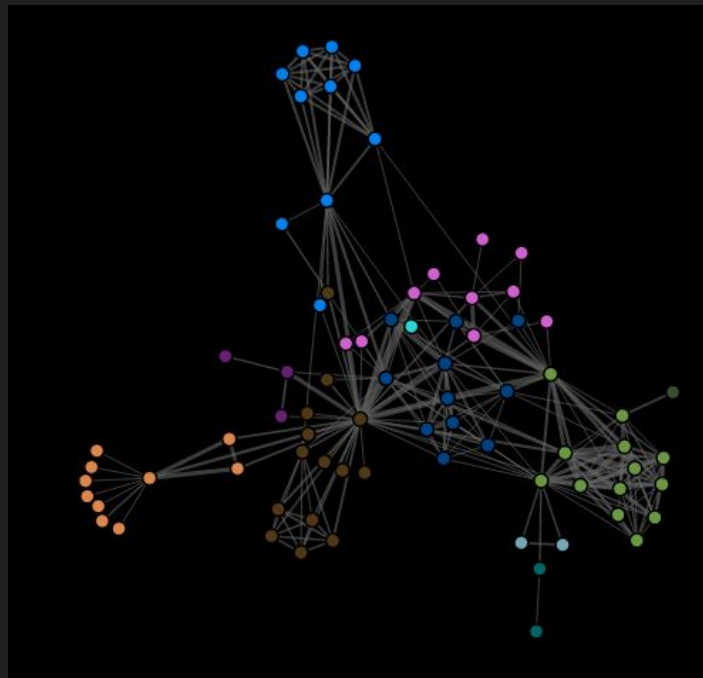
# Part I: D3

# Data-Driven Documents (D3)

Examples: <https://github.com/d3/d3/wiki/Gallery>



Heat Maps



Dynamic Networks

## D3 - <https://d3js.org>

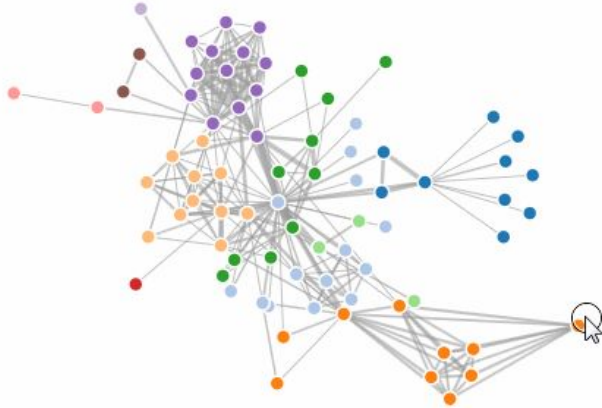
- Great Resources from Mike Bostock: <https://bost.ocks.org>
- Let's start with a simple example: Three Little dots...

```
<svg width="720" height="120">  
  <circle cx="40" cy="60" r="10"></circle>  
  <circle cx="80" cy="60" r="10"></circle>  
  <circle cx="120" cy="60" r="10" style="fill:steelblue;"></circle>  
</svg>
```



<http://fiddle.jshell.net/F6YaR/1/>

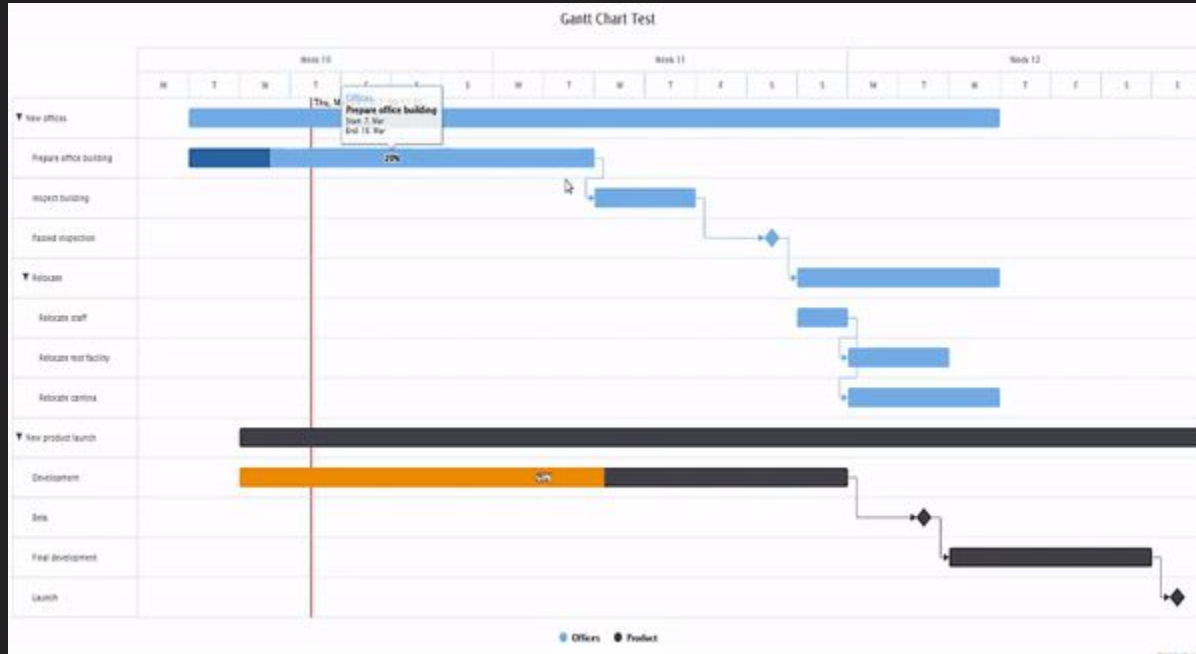
# Advanced D3



- Steep learning curve
- Requires more complex js functions
- JSON Data

## **Part II: HighCharts**

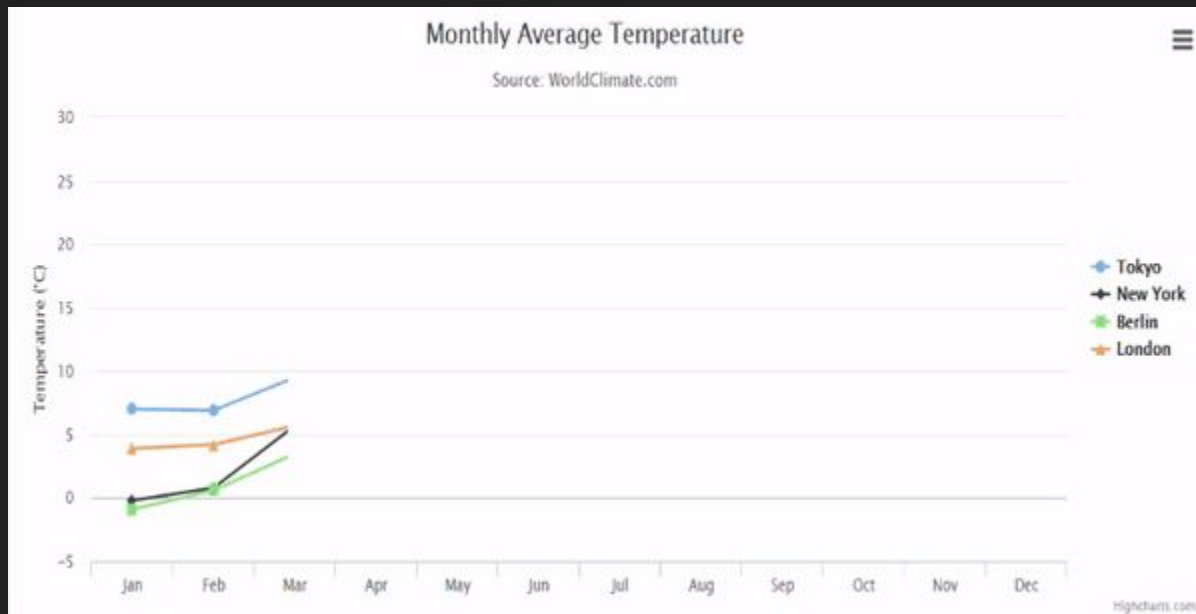
# HighCharts - <http://www.highcharts.com/>



<https://twitter.com/Highcharts/status/839791587794251776>

# HighCharts

- Example: Simple line graphs: <https://jsfiddle.net/kg1hph6y/>



<https://twitter.com/Highcharts/status/839776784262520833>



# HighCharts

- Great for building Analytics Dashboards with a web framework (like Flask)!



<https://socialmachines.herokuapp.com/>

## **Part III: Google Visualization**

# Google Visualizations

Documentation: <https://developers.google.com/chart/interactive/docs/reference>

**Task:** We want to visualize Confoo servers worldwide

**Solution:** LAMP setup + Google Visualization library

<http://localhost/confoo>

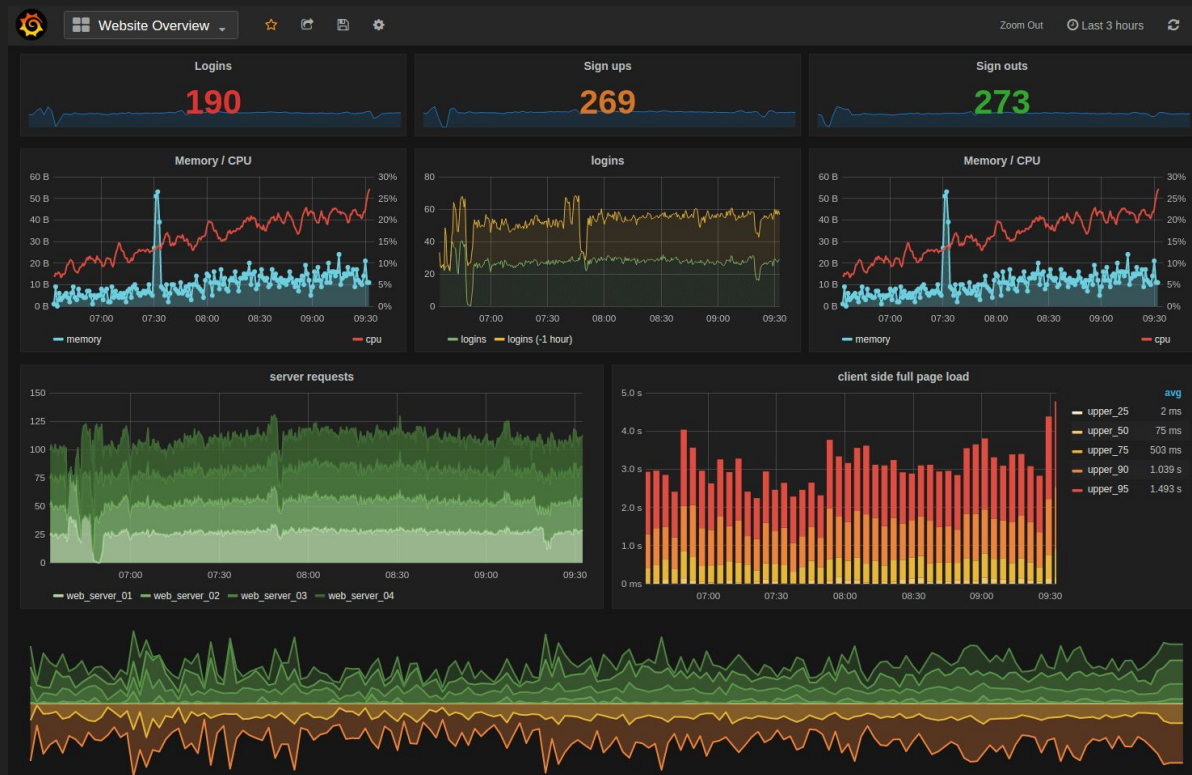
# Google Visualization + React

Optimizing the graph rendering with React

<http://localhost/confoo/index2.html>

## **Part IV: Grafana**

# Grafana - <http://grafana.org/>



<http://play.grafana.org/dashboard/db/grafana-play-home>

# Q & A

## Introduction to Data Visualization

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@stronnic

[github.com/spaiva/confoo-2017](https://github.com/spaiva/confoo-2017)