



BrainHack  
School



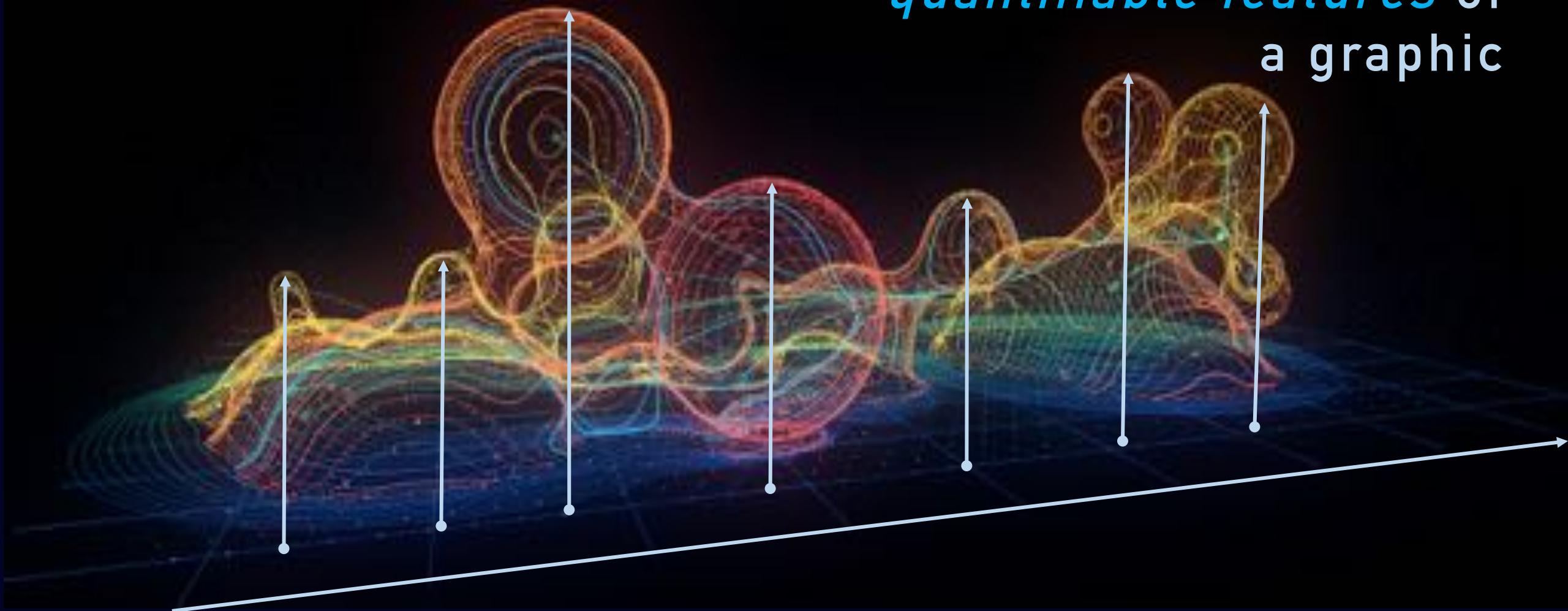
Aga h Karaku zu

2019

INTERACTIVE  
VISUALIZATIONS

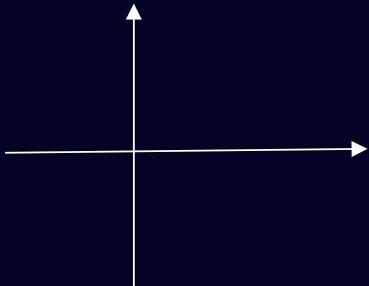
All data visualizations map  
data values into  
*aesthetics*

Aesthetics are the  
*quantifiable features* of  
a graphic



# AESTHETICS

position



C&D

shape



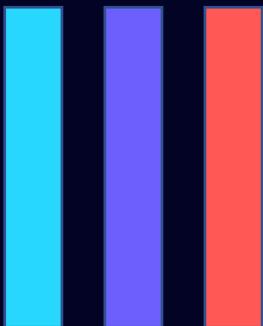
D

size



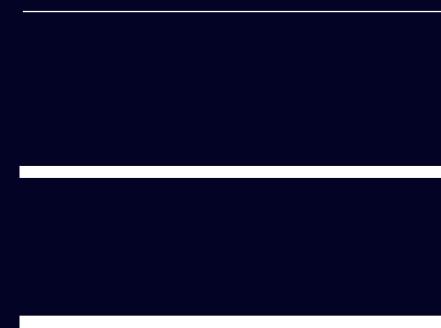
C&D

color



C&D

line width

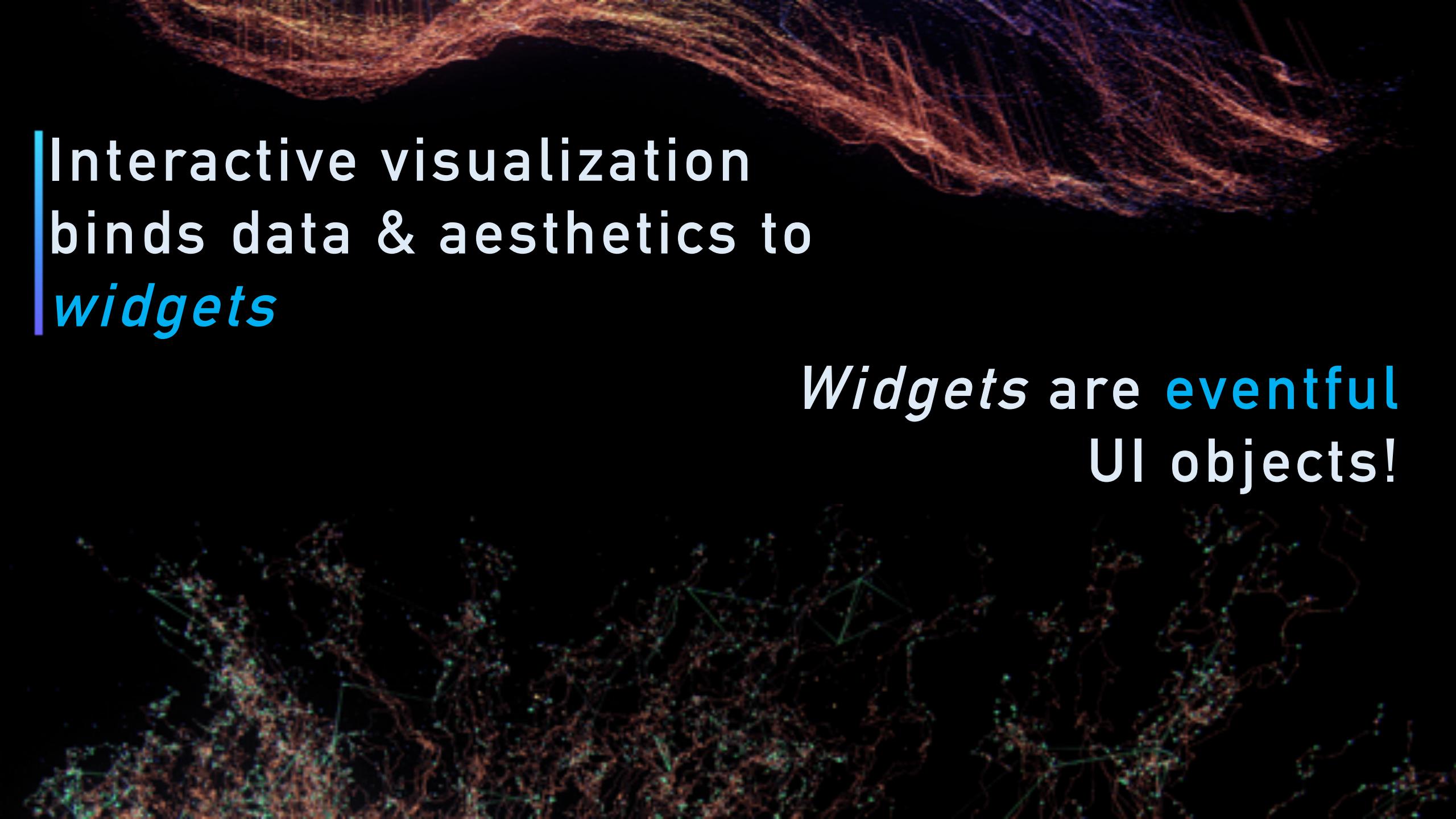


C&D

line type



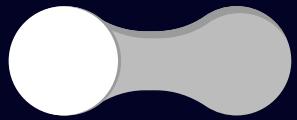
D



Interactive visualization  
binds data & aesthetics to  
*widgets*

*Widgets* are **eventful**  
UI objects!

toggle



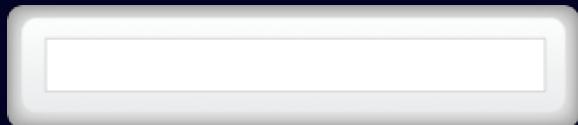
slider



check/radio  
buttons



textbox



dropdown



click events



We need *charts* to have a proper canvas for visualization

Uncertainty

Relationship

Trend Distribution

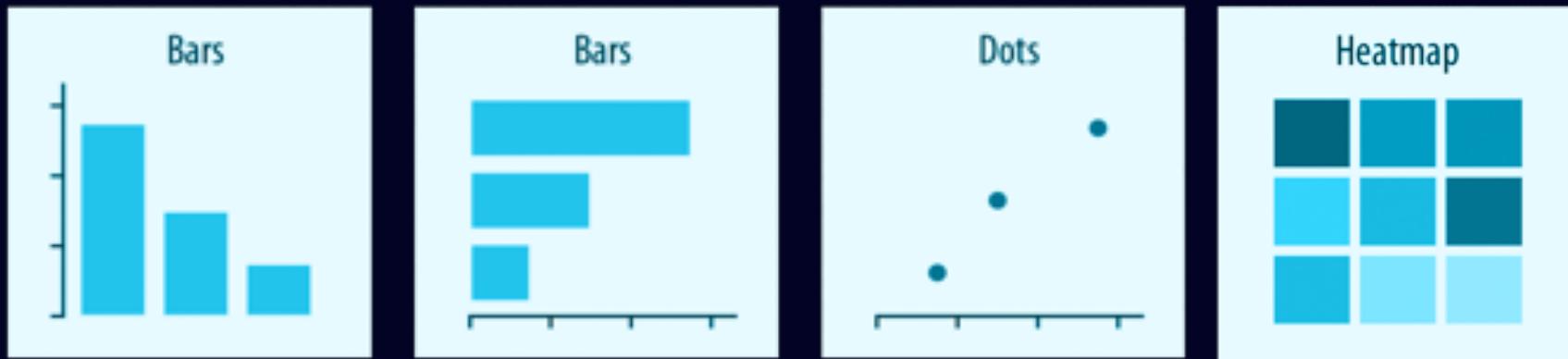
Amount Comparison

Proportion Composition

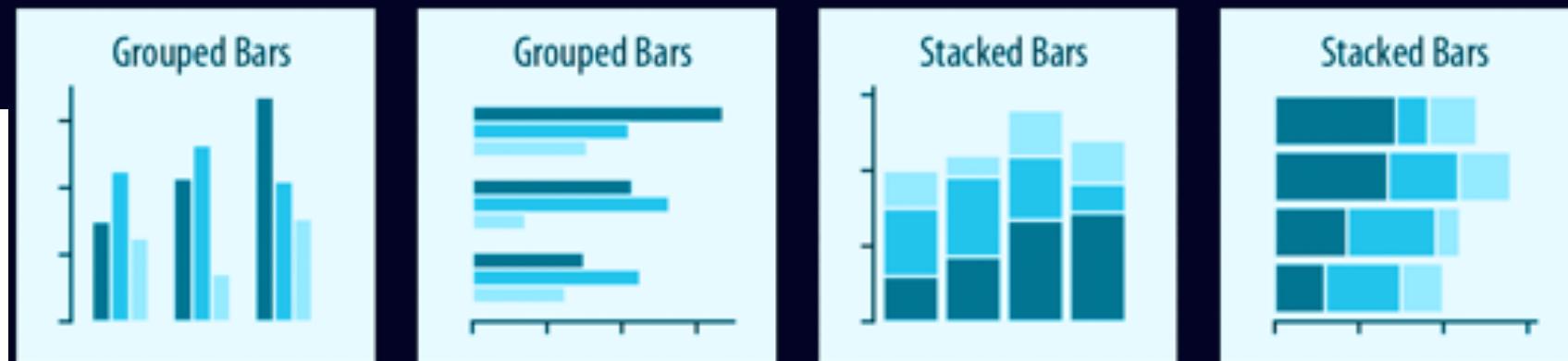
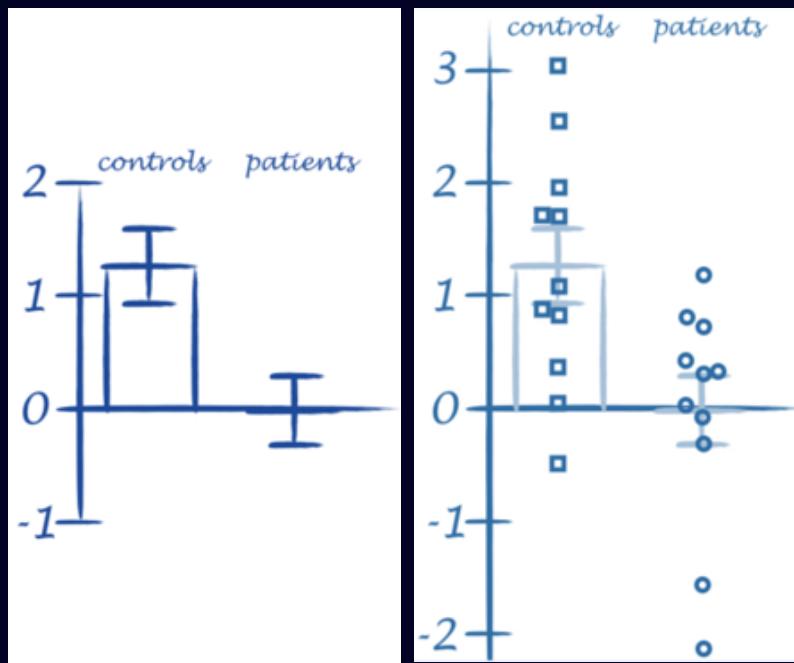


# 1

## Amounts



## #BarBarGraphs



Categorized numerical values.  
Categories can be individual or paired.

# 2

## Distributions

With flat depth  
we can't see  
what's going on.  
Violin plots show  
distribution info  
but don't have  
comparisons  
between numbers  
At single distributions  
over time.  
They tend to easily  
be confusing.



# 3 Proportions

Multiple bars

grouped if you have many groups.

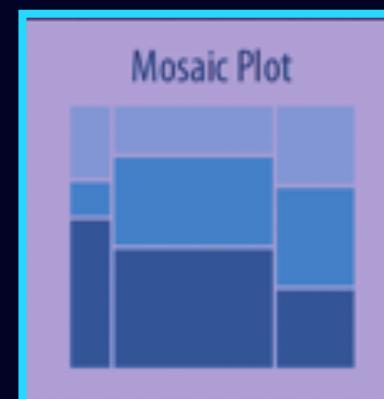
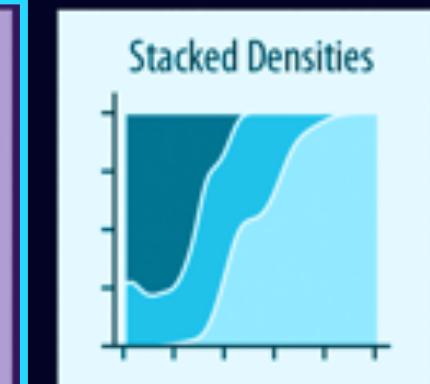
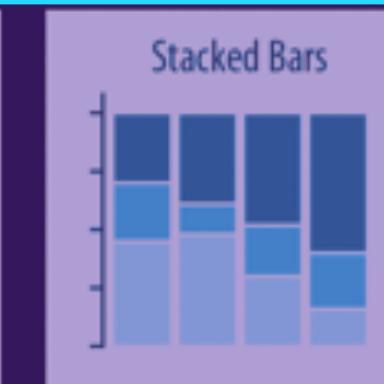
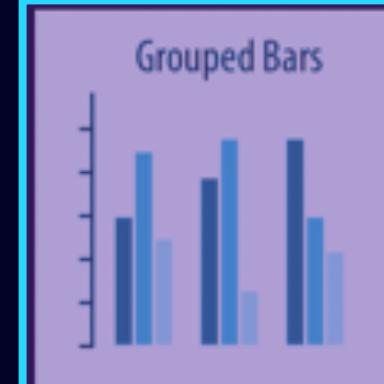
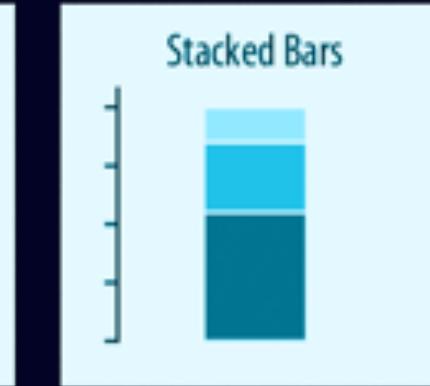
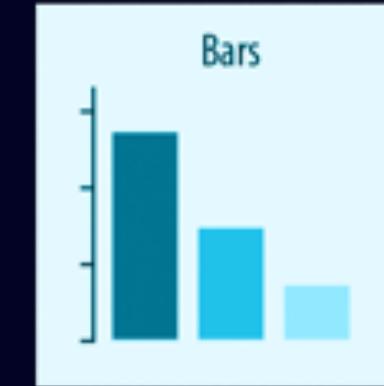
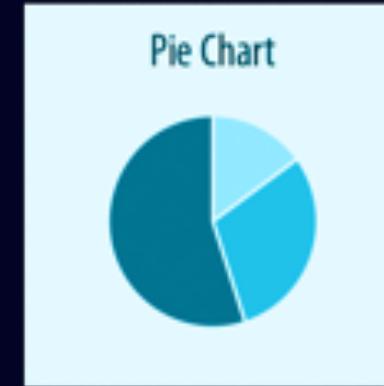
2 -> Mosaic plot

End

are OK with

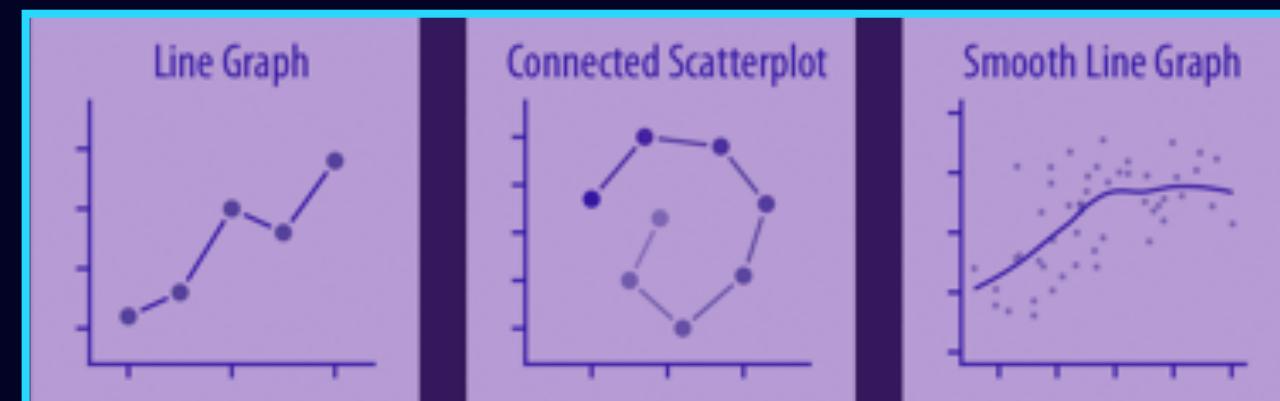
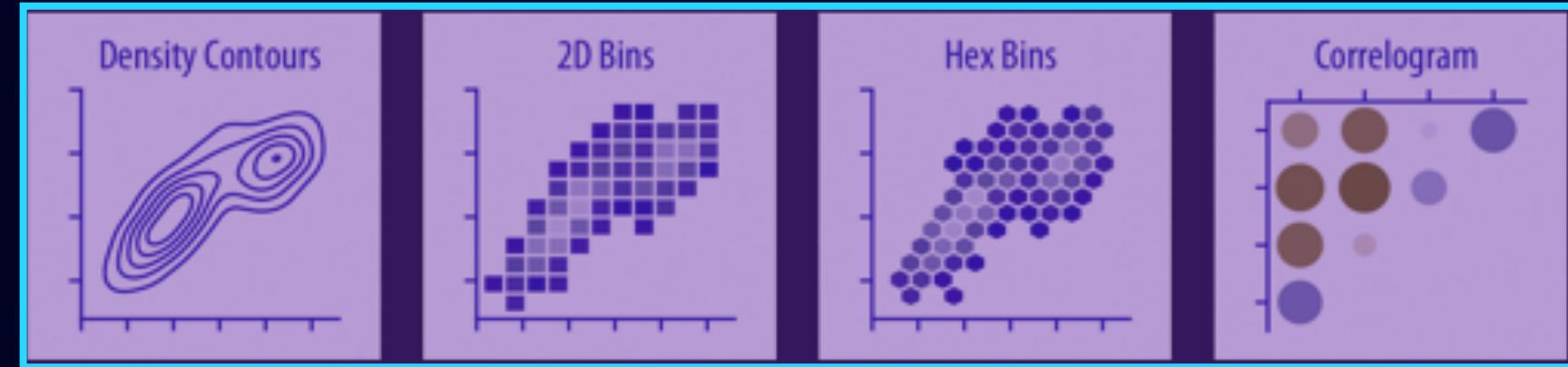
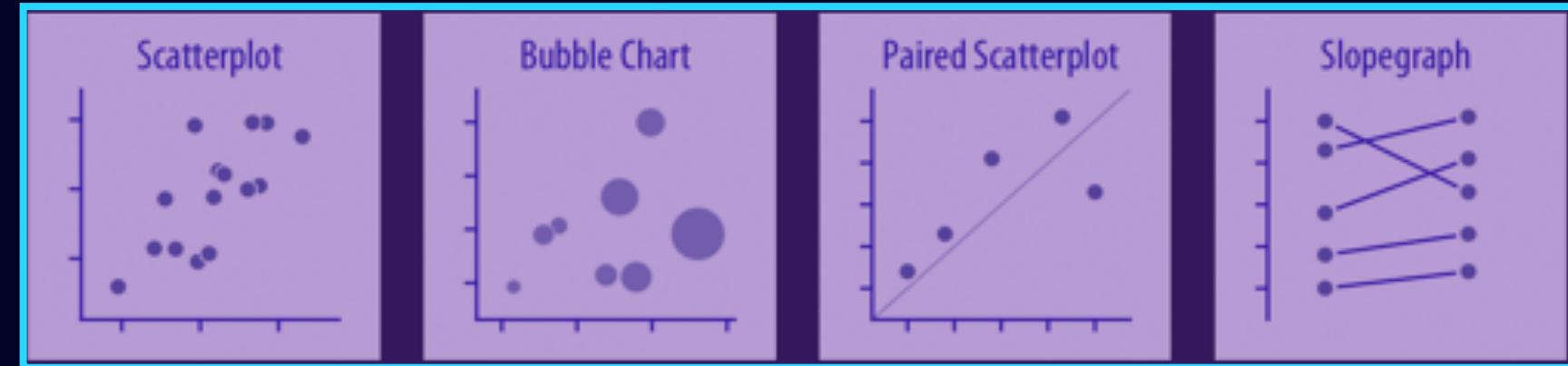
no Parallel sets

amount of conditions



# 4 x-y relationships

Four ways to show  
pairs vs. single  
increasing time:  
Line graph  
Density contours  
Slope density line  
Connected  
Paired plot  
Connect  
pairs than 2  
in a single dataset:  
Smoothed line

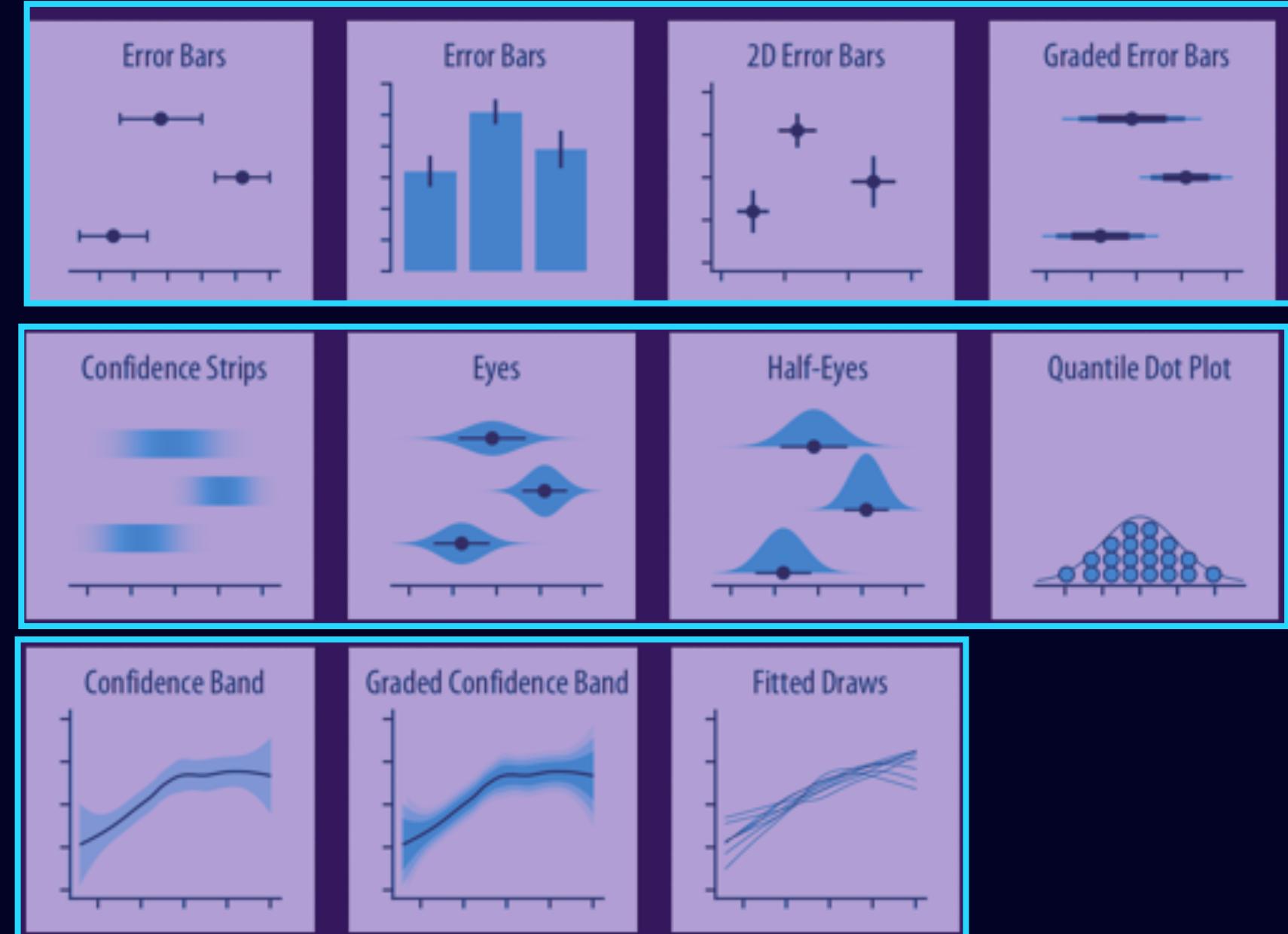


## 5

## Uncertainty

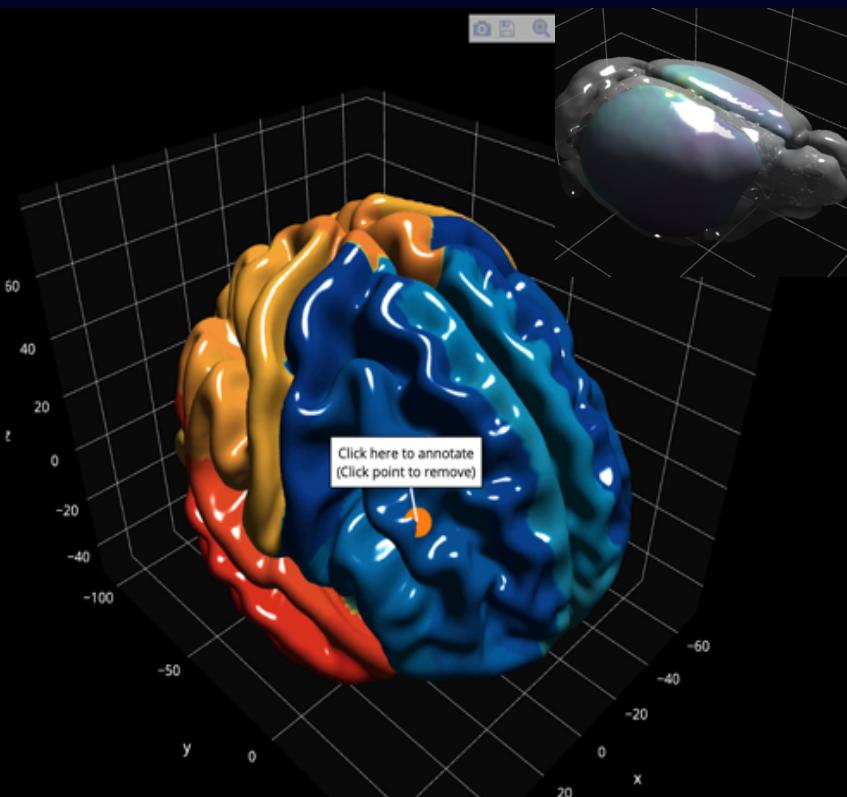
Most often it's only  
inferred from the data . . .  
most measurement ranges  
span the actual  
Bias is ~~extreme~~ from  
a reference  
location.

Multiple error  
ranges: Graded  
error bars

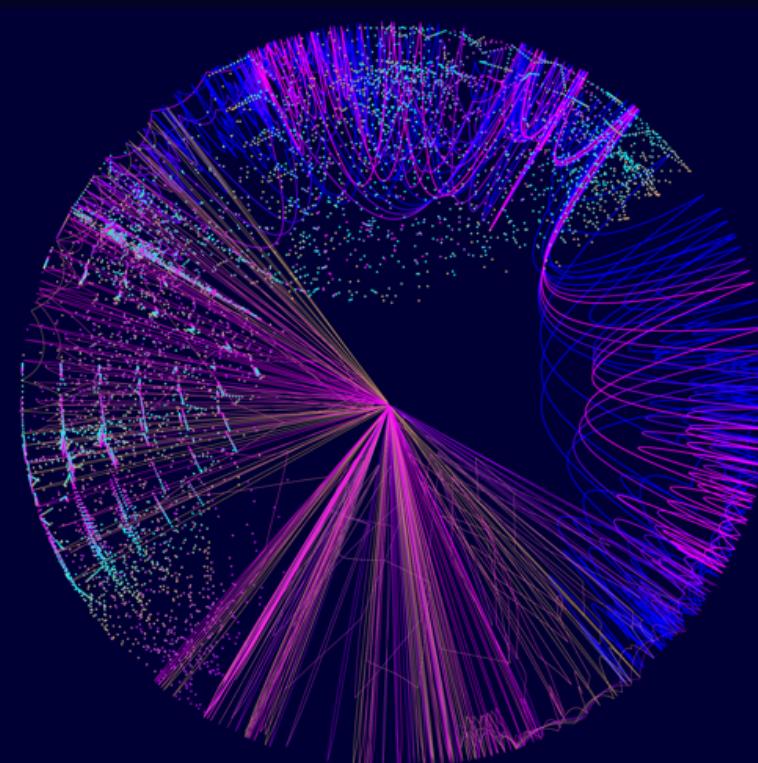


# 6

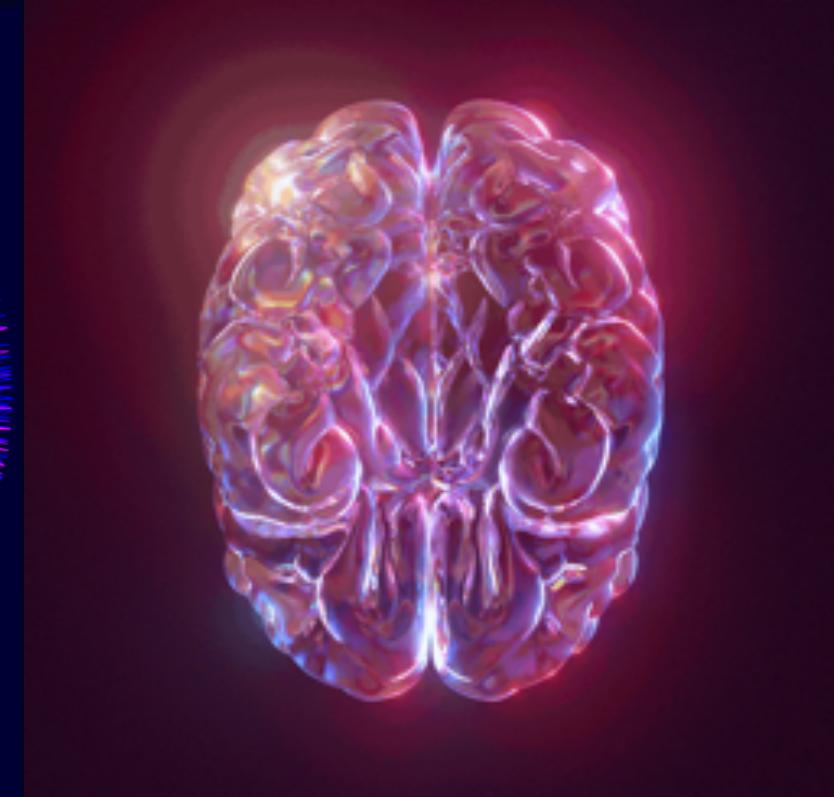
## Tailored charts



Surface rendering



Connectogram



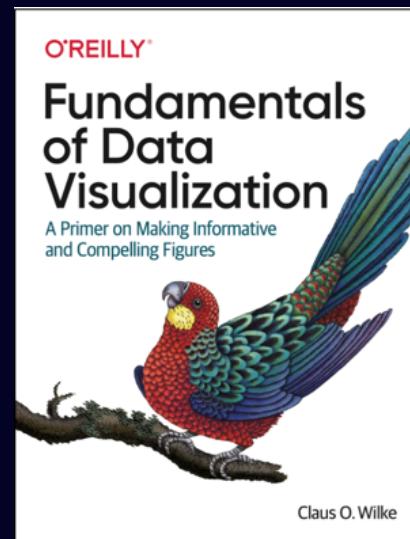
Animated activation maps

eagereyes

eagereyes.org

The Data Visualisation Catalogue

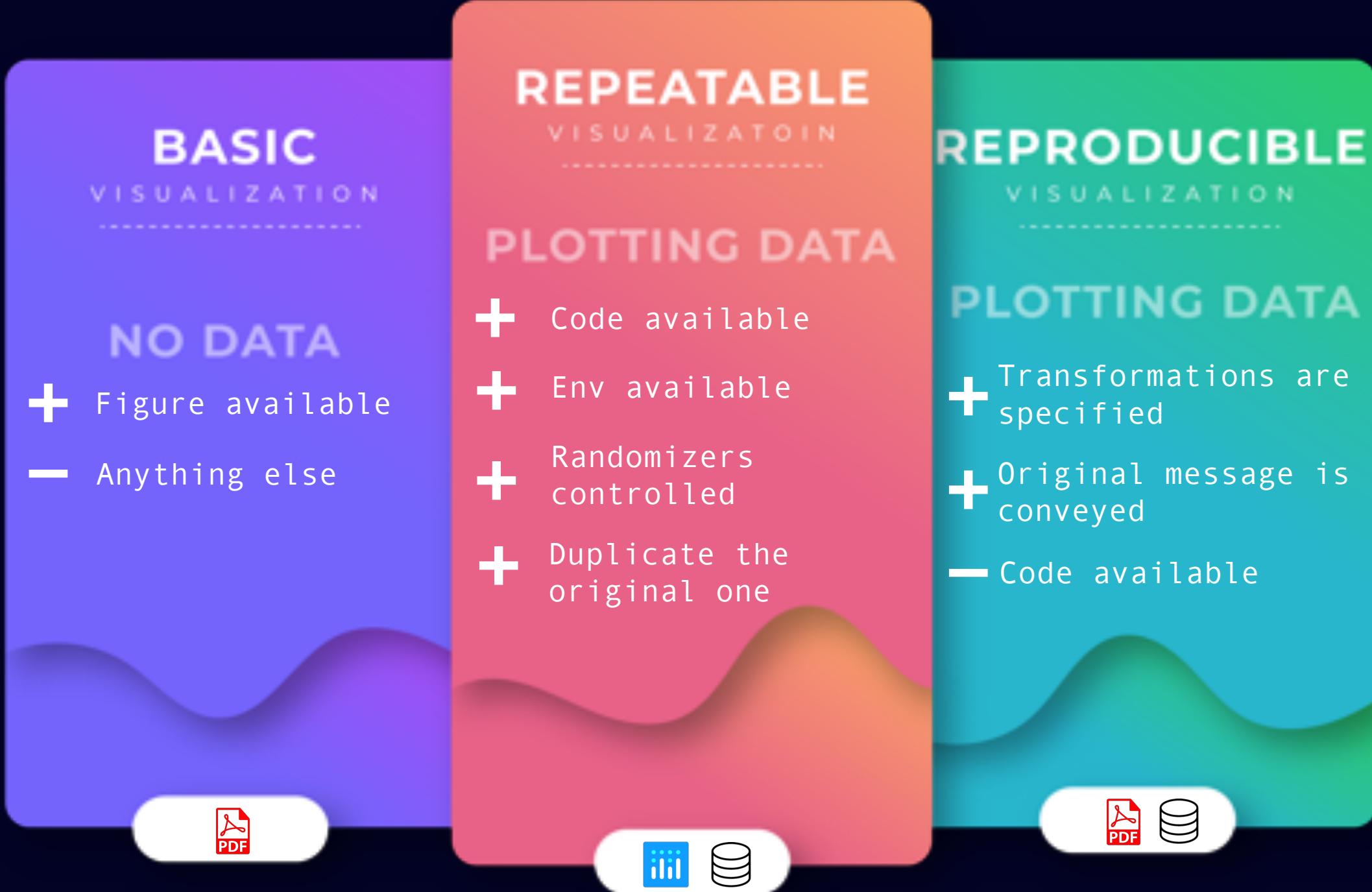
[datavizcatalogue.com](http://datavizcatalogue.com)

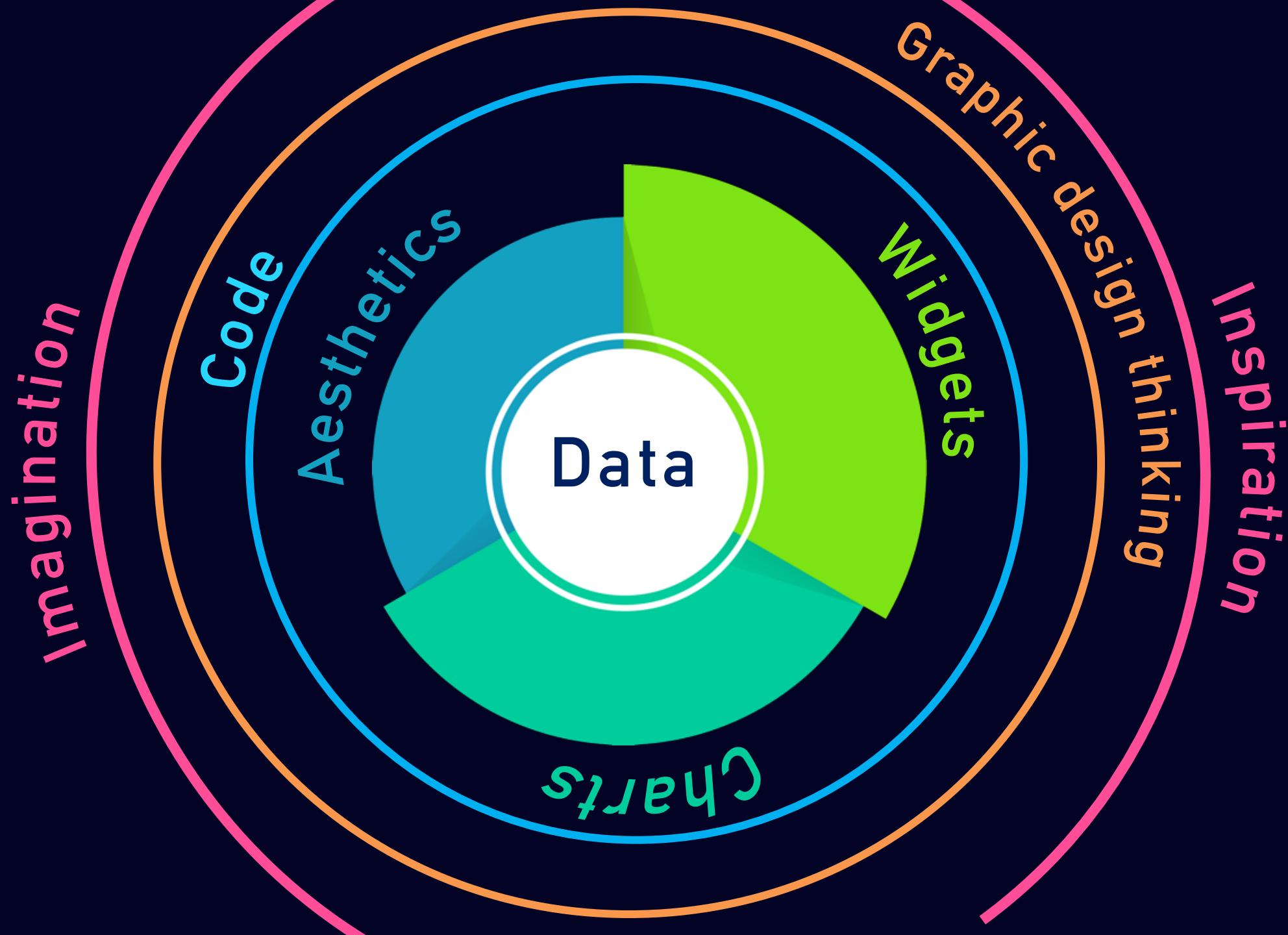


<https://serialmentor.com/dataviz>

# *Reproducibility* and *repeatability* of data visualization



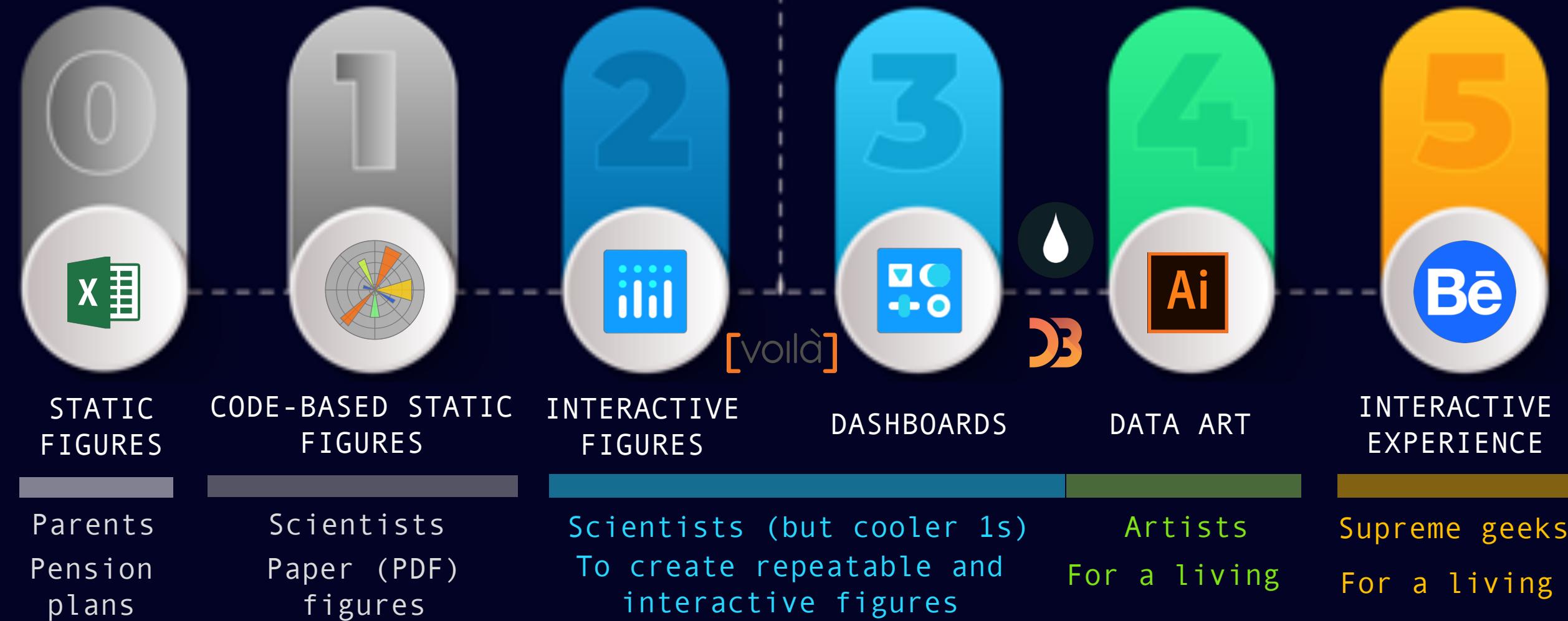




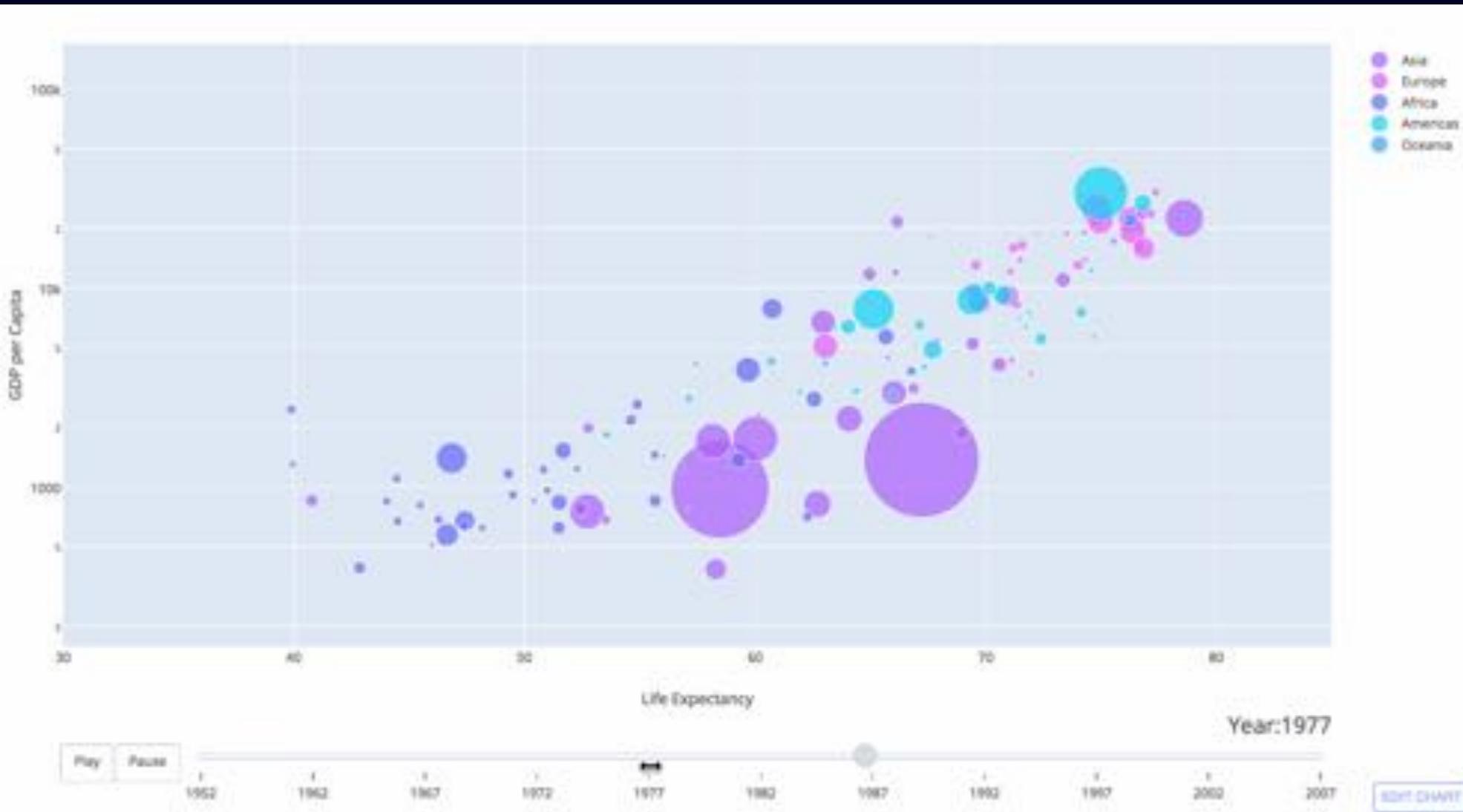
*Spectrum of dataviz  
sophistication is quite  
wide!*



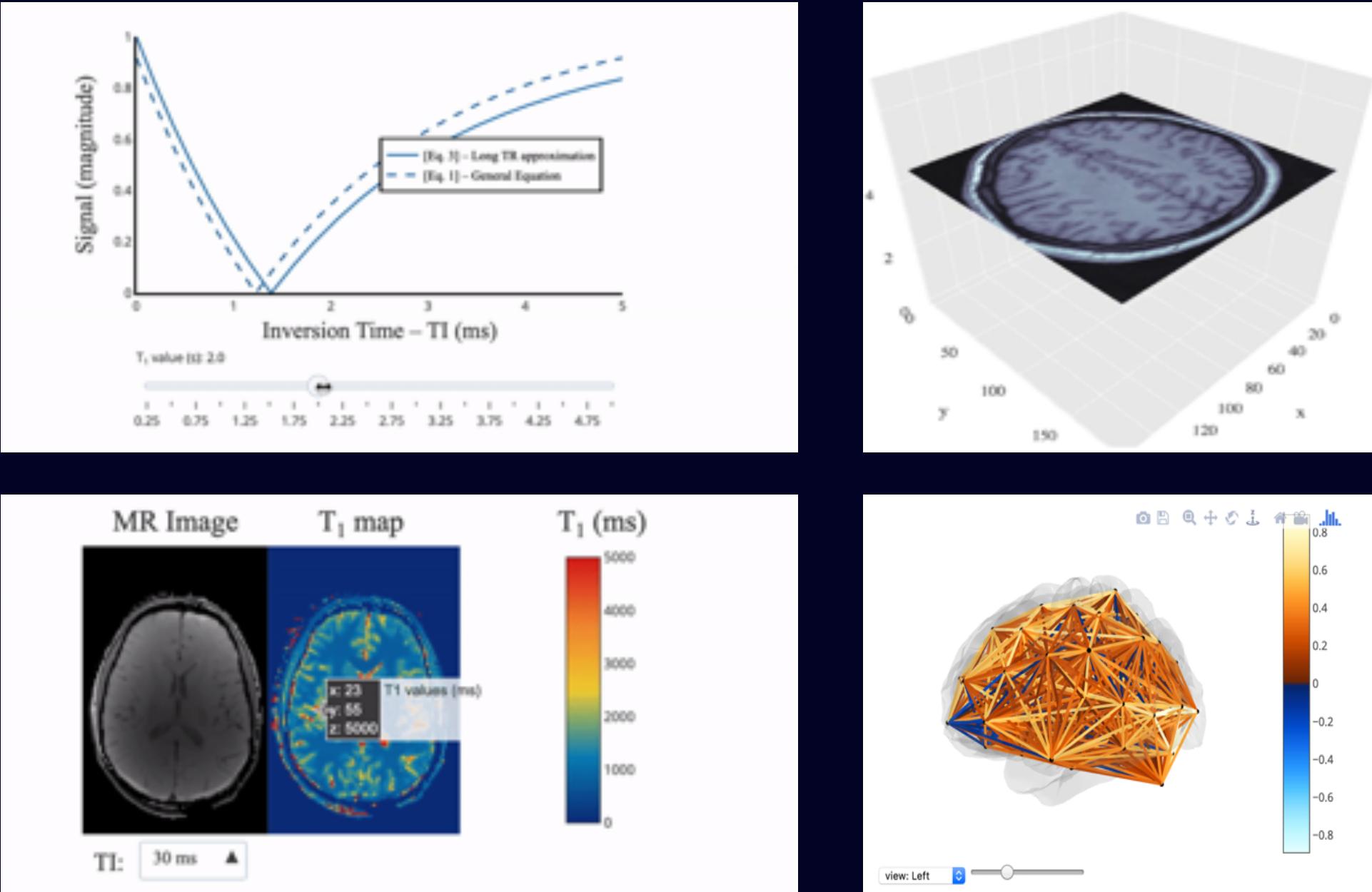
# SPECTRUM OF DATAVIZ SOPHISTICATION



## INTERACTIVE FIGURE EXAMPLE



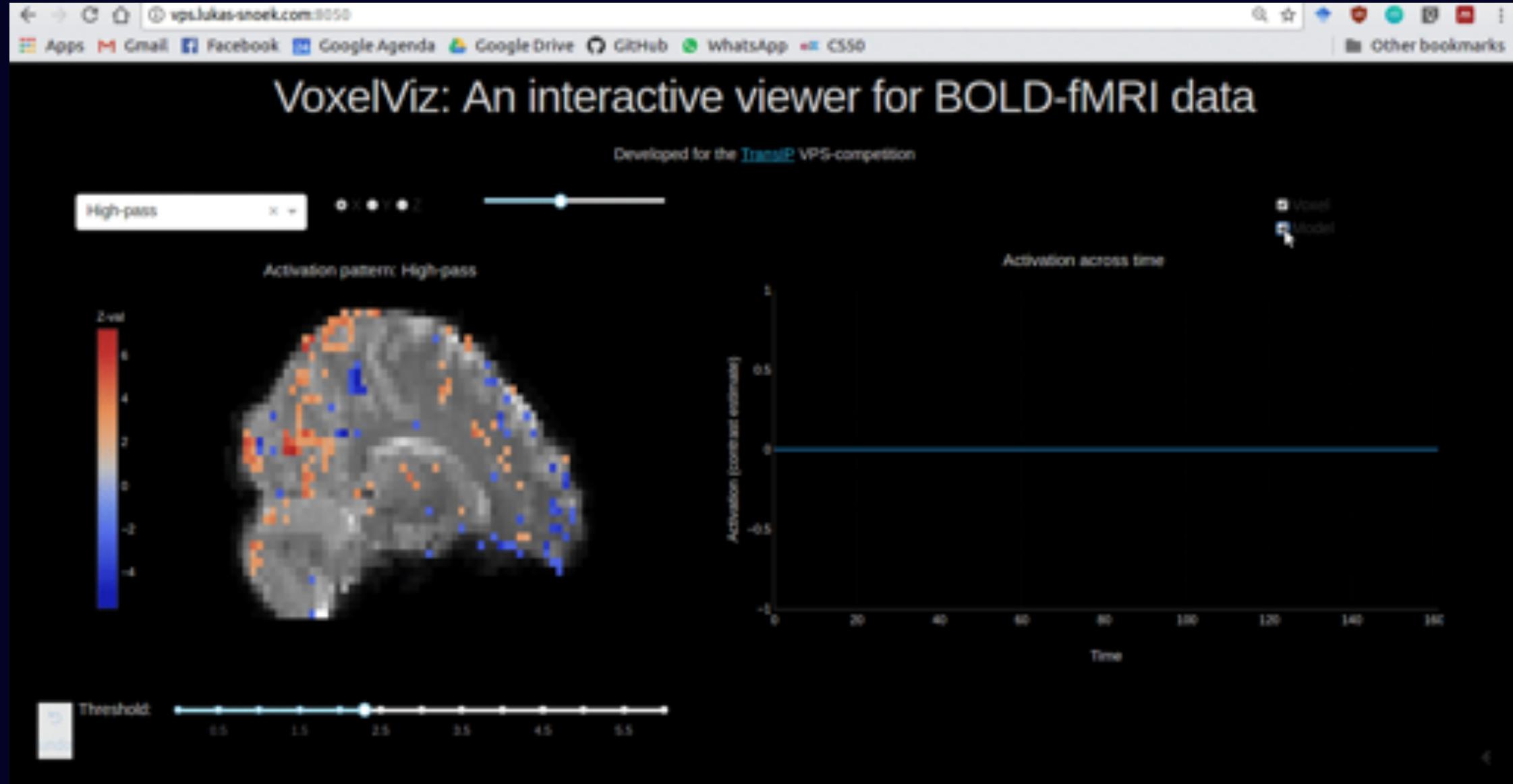
# INTERACTIVE FIGURE EXAMPLE



## DASHBOARD EXAMPLE



## DASHBOARD EXAMPLE



<https://lukas-snoek.com/voxelviz/>

# Interactive visualization examples



[plot.ly/feed](http://plot.ly/feed)



[distill.pub](http://distill.pub)



information is beautiful

[informationisbeautiful.net](http://informationisbeautiful.net)

D3.js Gallery (2490examples!)



[christopheviau.com/d3list/gallery.html](http://christopheviau.com/d3list/gallery.html)

[dash.plot.ly/gallery](http://dash.plot.ly/gallery)



Data-Driven Documents

[d3js.org](http://d3js.org)



[visualcomplexity.com](http://visualcomplexity.com)



[visualloop.com](http://visualloop.com)



[neuroibre.conp.ca](http://neuroibre.conp.ca)



OWNERS

-  **Crtomir Just**  
♀ Murska Sobota, Slove... Following
-  **matej koncan**  
♀ Murska Sobota, Slove... Following
-  **ahac ahac**  
♀ Murska Sobota, Slove... Following
-  **BlackBox Applied Ne...**  
♀ Ljubljana, Slovenia Following

Braindance  
Music  
EEG  
Focus  
Flow (relax)  
Data artist



datavized

AND

Google News Initiative



morph

Make Art with Data

Morph is a **free & open-source** tool for creating designs,  
animations or interactive visualizations from data



A REAL-TIME PERSONALIZED DATA  
VISUALIZATION EXPERIENCE

# Data artists to be inspired by



**Krisztina Szűcs**

data visualization designer  
freelancer  
<http://krisztinaszucs.com>  
✉ Budapest, Hungary



**Karol Gadzala**

Typography – Branding – Illustration  
<http://karolgadzala.com>  
✉ Hamburg, Germany



**Jonathan Petersen**

independent graphic designer & illustrator  
[jonathanwpetersen.com](http://jonathanwpetersen.com)  
✉ Chicago, IL, USA



**Sergey Maslov**

Motion Designer/Art Director  
Smaslom  
[smaslom.com](http://smaslom.com)  
✉ Moscow, Russian Federation



**Federica Fragapane**

Award Winning Information Designer |  
[federica.fragapane@gmail.com](mailto:federica.fragapane@gmail.com)  
<https://twitter.com/fedfragapane>  
✉ Turin, Italy



**CLEVER ° FRANKE**

C°F – Data driven experiences  
<http://www.cleverfranke.com>  
✉ Utrecht, Netherlands

**Braindance**

OWNERS **Crtomir Just**  
✉ Murska Sobota, Slove...  
[Following](#)

**matej koncan**  
✉ Murska Sobota, Slove...  
[Following](#)

**ahac ahac**  
✉ Murska Sobota, Slove...  
[Following](#)

**BlackBox Applied Ne...**  
✉ Ljubljana, Slovenia  
[Following](#)



**Garry Killian**

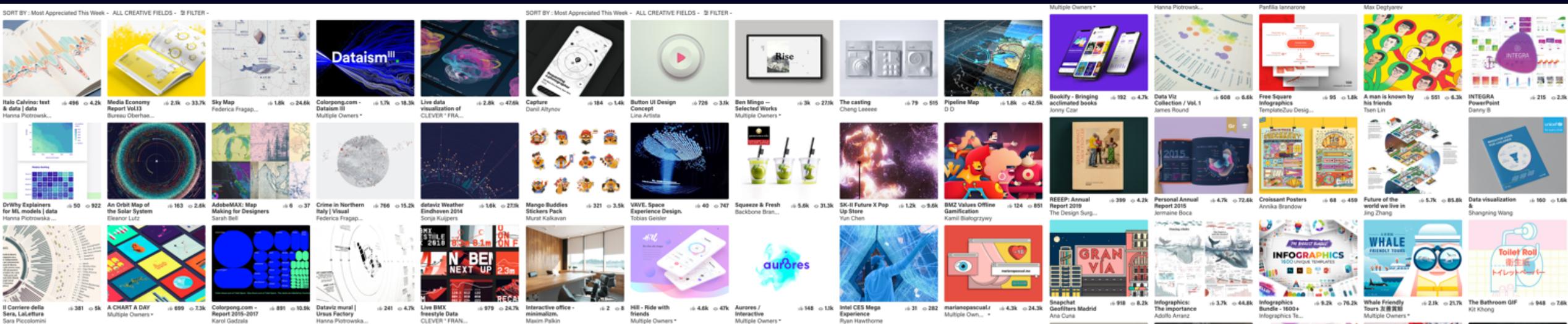
[http://www.shutterstock.com/g/GarryKillian...](http://www.shutterstock.com/g/GarryKillian)  
✉ Kiev, Ukraine

Some keywords to search on Behance

# dataviz

# interactive design

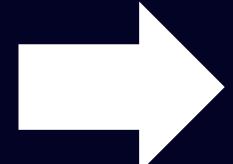
# infographic



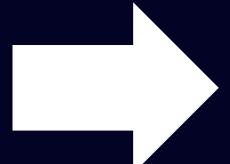
# *Infographics* represent the information with the help of charts, graphs and pictures.



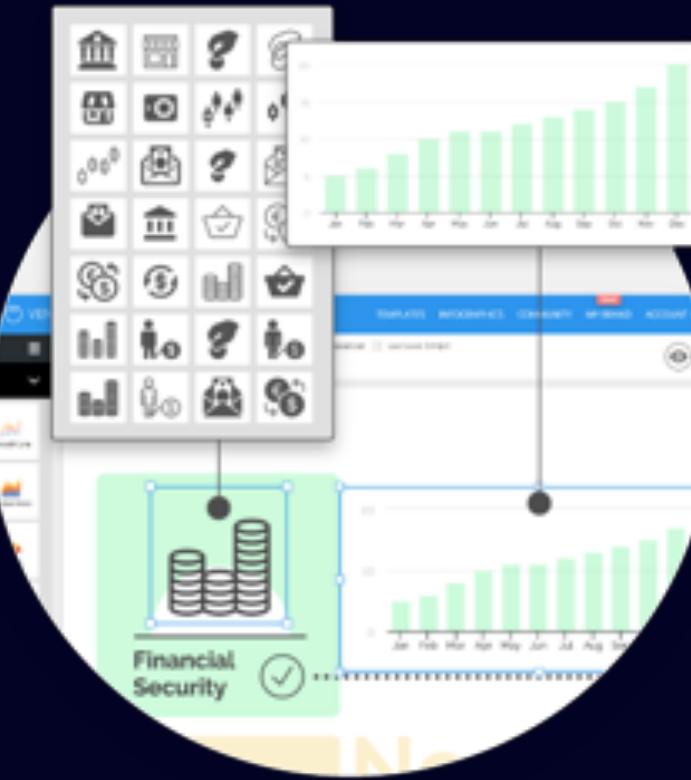
Find a template



Add your visuals

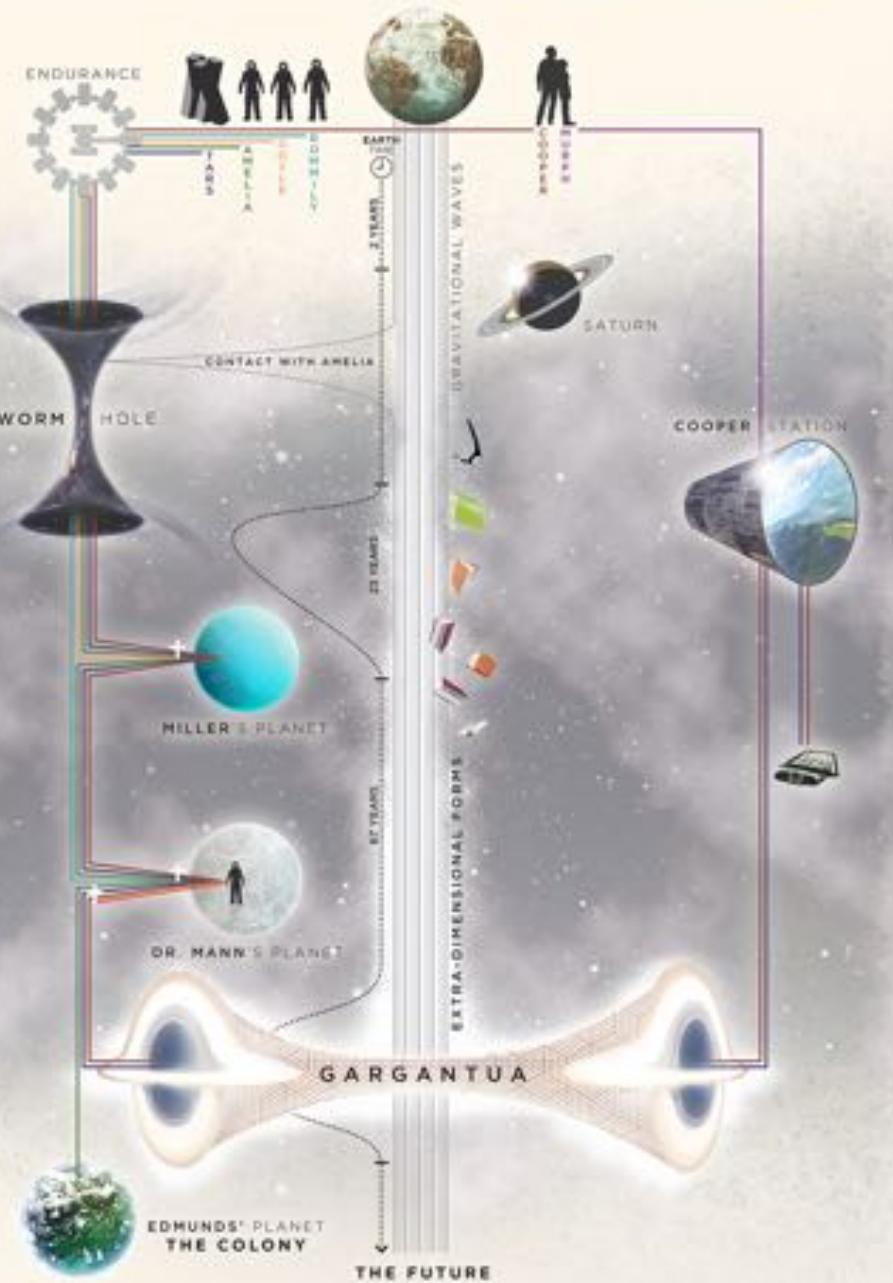


Customize



# INTERSTELLAR TIMELINE

BY DOGAN CAN GUNDOGDU



# HISTORY: DAFT PUNK

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## ONLINE RESOURCES

Get inspired by



[visualloop.com](http://visualloop.com)

Pick your guns from



[freepik.com](http://freepik.com)



[icons8.com](http://icons8.com) [vecteezy.com](http://vecteezy.com)

## BROWSER



## FREE SVG/EPS



**INKSCAPE**  
*Draw Freely.*

[inkspace.org](http://inkspace.org)



**BOXY SVG**  
[boxy-svg.com](http://boxy-svg.com)

## PRO (PAID)



**ADOBECREATIVE CLOUD**

[adobe.com/ca/creativecloud.html](http://adobe.com/ca/creativecloud.html)