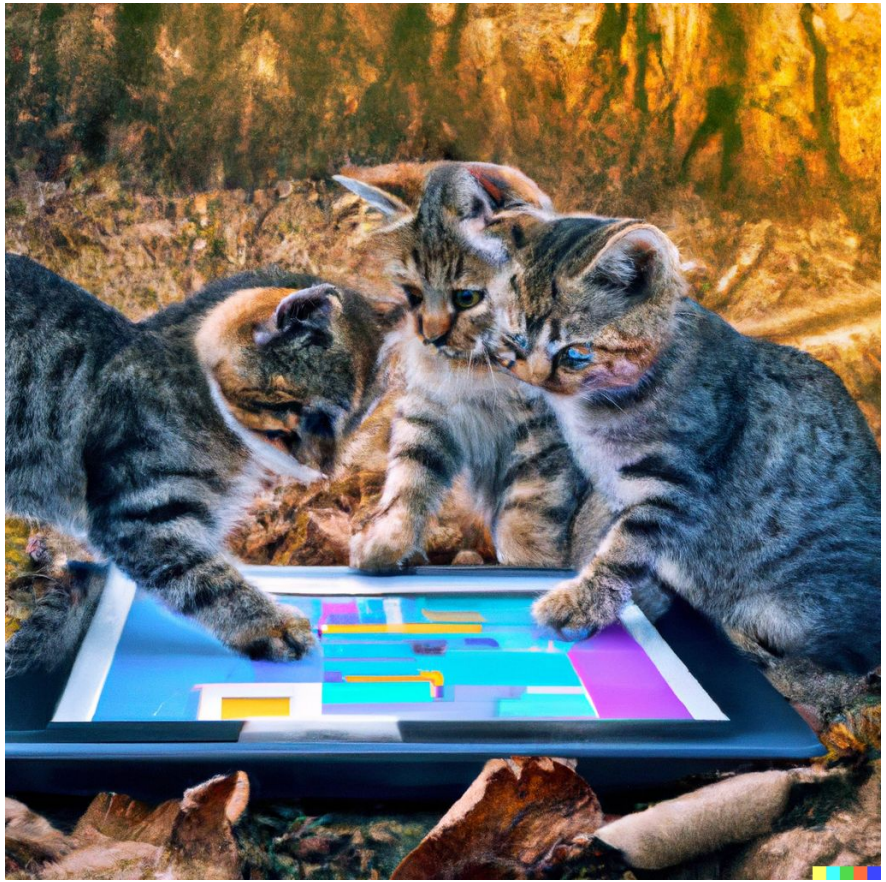
FALL 2023
DSE 12700
VISUAL ANALYTICS

Professor
Madeline Blount
she/her

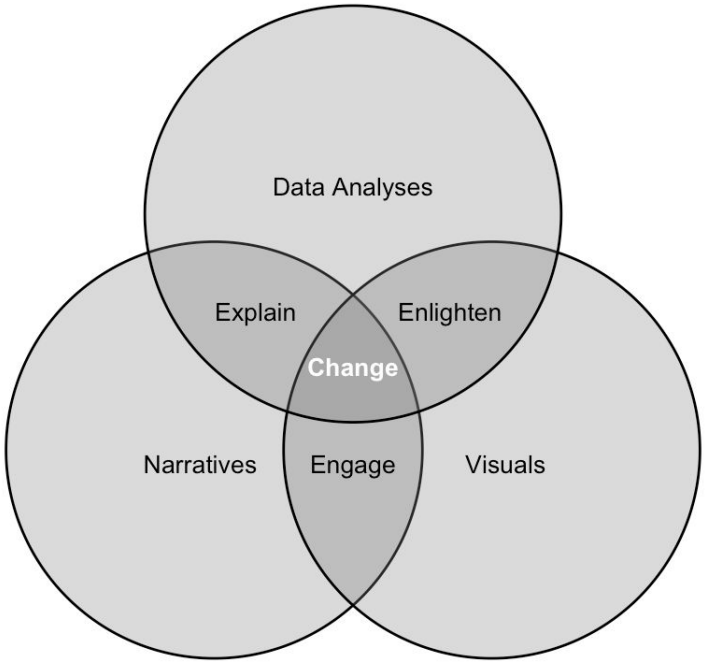
Week 5
interactivity



Dall-E2, tabby kittens creating colorful digital charts in a forest, photorealistic style

Scott Spencer
Columbia University

Data in Wonderland
Law & Business world, & sports (baseball)



"All we've discussed preceding this section is a ***prerequisite*** to interactivity — whatever we mean by that — because all those concepts about communication and graphics best practices still apply. Stated differently, if you haven't used those principles from static graphics when making an interactive graphic, **adding interactivity will just be an interactive version of an ineffective graphic**."

We should ask: *can interactivity simplify, clarify, provide focus to the contextual comparisons in our messages?*

-Spencer, *Data in Wonderland*

EXAMPLES:

Baseball fields (Spencer)

Arc diagram, hurricane (NYT)

Rent/buy (NYT)

Uber driving pickup times (NYT)

Citi bikes (Spencer)

🔎 Overview -> Filter -> Zoom -> "details on demand"

Audience (users) and their **task** needs are still our main consideration, guide us toward what interactivity we build.

What can interactivity do?

Mark something as **interesting**

Show me **something else**

Show me a **different arrangement**

Show me a **different representation**

Show me more or less **detail**

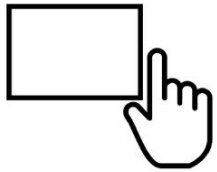
Show me something **conditionally**

Show me **related** things

Let me go back to **where I've been**

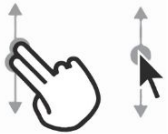
-Spencer

how we interact, common *interfaces* and *actions*



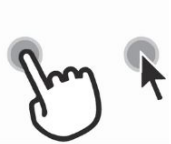
POINTING, HOVERING

SCROLLING

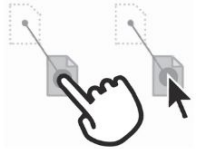


CLICKING

PRESSING



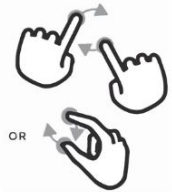
DRAGGING



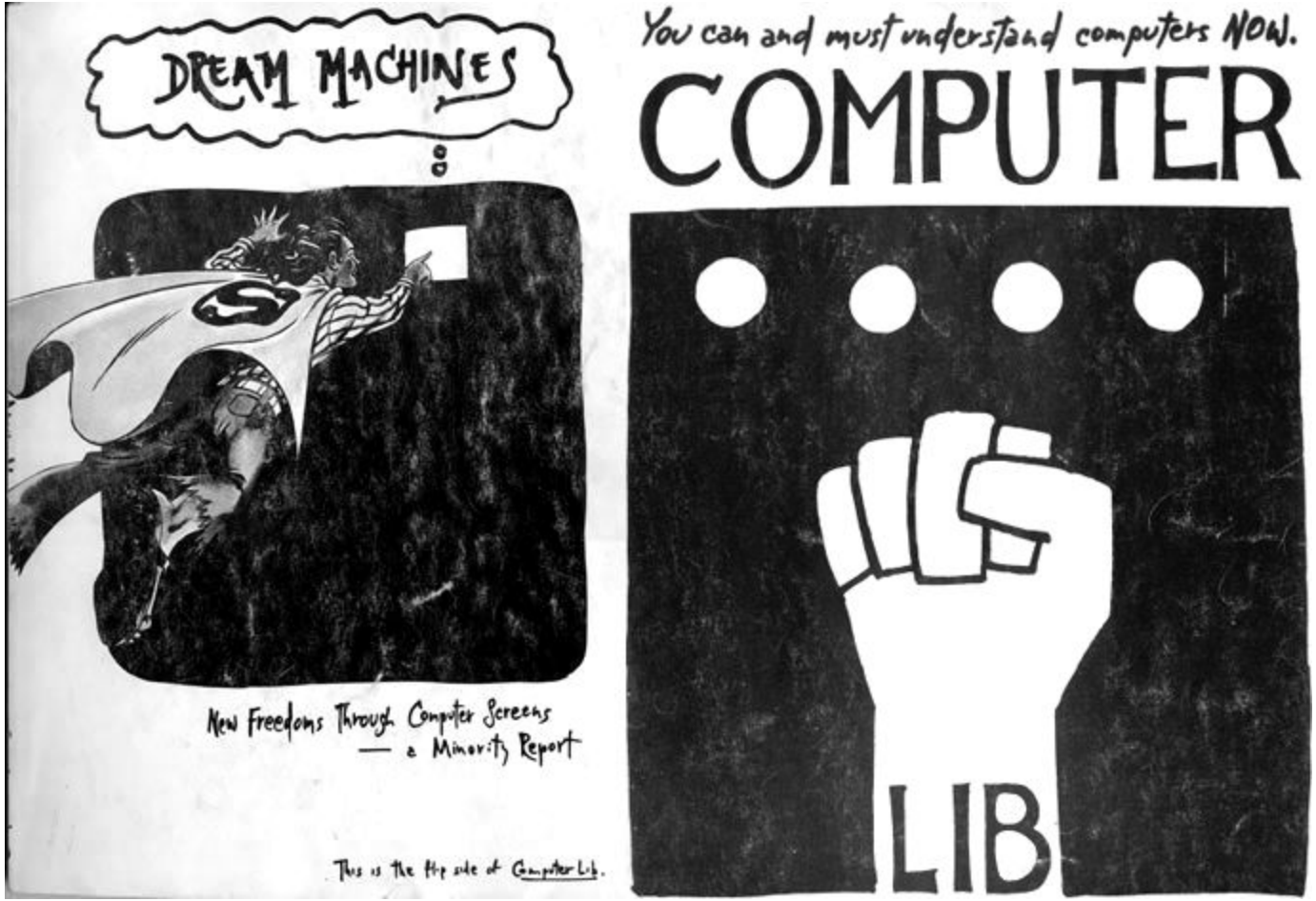
SWIPING

PINCHING, SPREADING

ROTATING

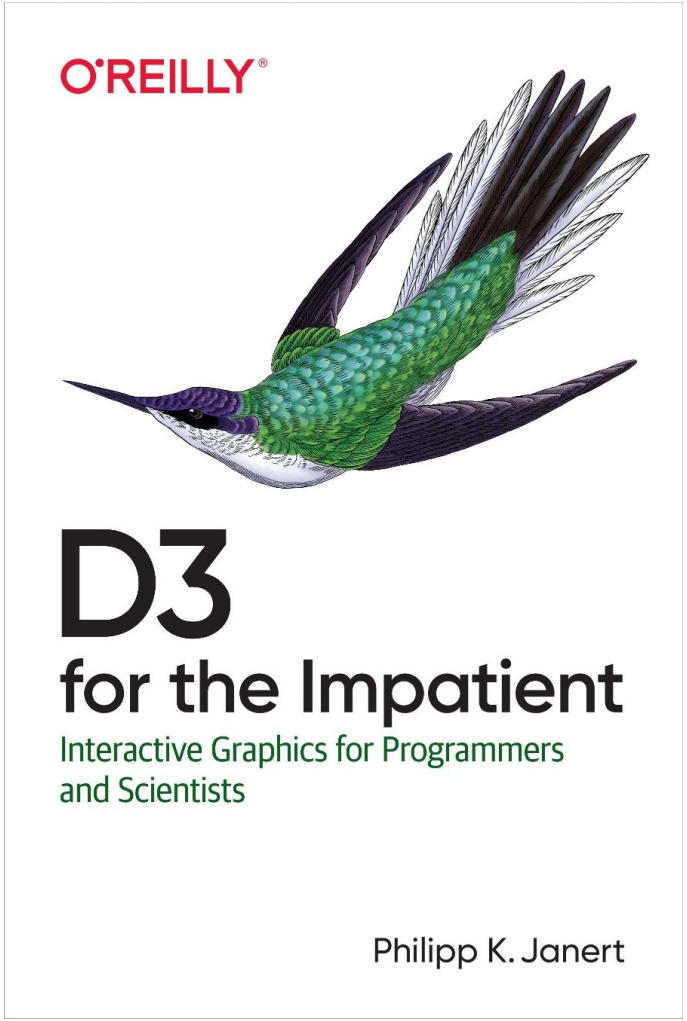


GESTURES WITH MULTIPLE FINGERS



Ted Nelson,
Inventor of the
back button, 1969

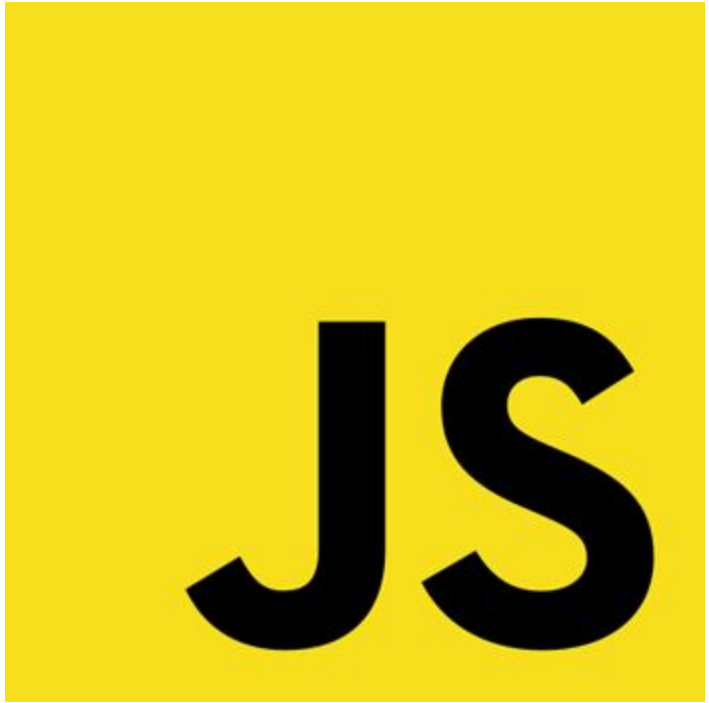
Zach Mandeville, https://coolguy.website



Phillip K. Janert
Physicist
Amazon

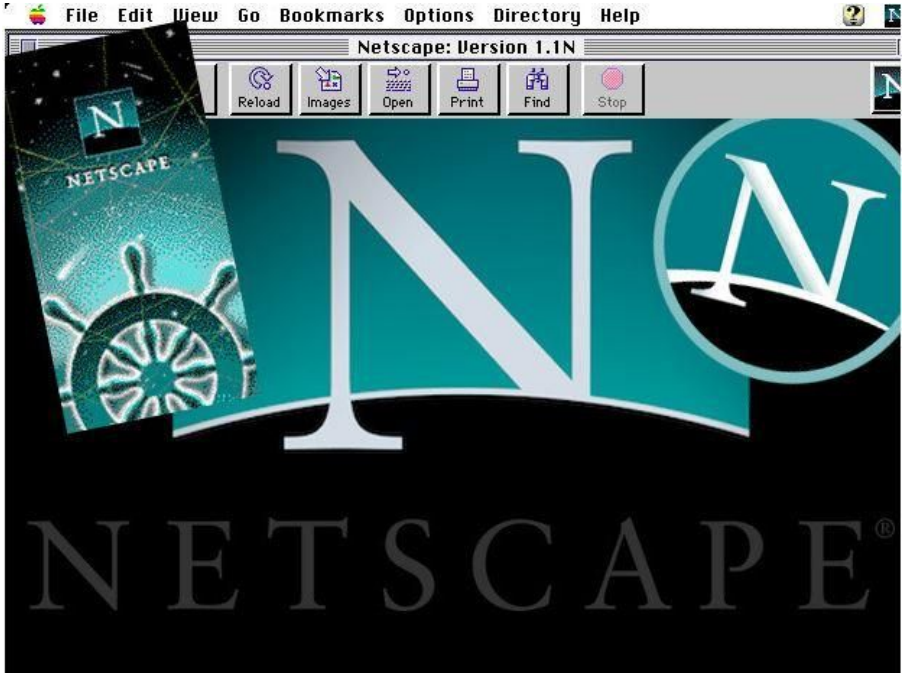
Multiple O'Reilly books (before data science was a field)

Good **walk-thru** of dataset -> code for d3 projects



- ☕ Not actually that related to Java - Java was simply popular at the time
- Weird fact: copyright by Oracle, company

- Javascript = language of the web!
- As of 2023, 98+% of webpages use JS (wikipedia, source)
- Developed with **web browser** - Netscape Navigator, 1994 & 1995

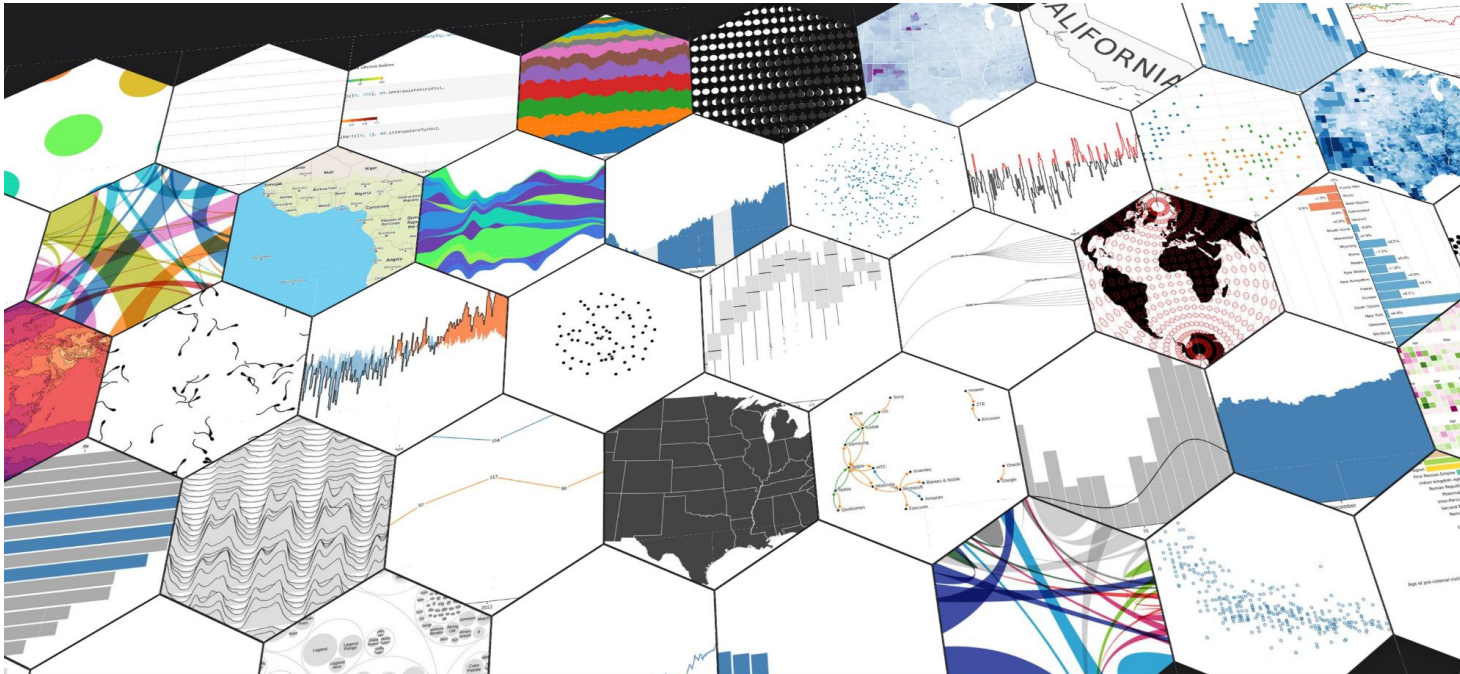


d3.js = D3 = “Data-Driven Documents”

Released in 2011, Stanford

Library, free + open source

Works with:
JS
HTML
CSS
SVG



What is a Webpage?

At its simplest, a webpage is a folder of text files broadcast from a computer to the rest of the world.

This folder will likely have media too (nice pictures and songs and such).

(And it's likely being broadcast far beyond our world, into outer space and the ethereal realms.)

It is continuously illuminating to realize websites are just text files in folders, like any other writing you'd keep on your computer.

And too that, beyond this, a webpage is whatever you want it to be.

Today, most webpages look the same. They don't have to.

🏠 LET'S SAY …
THE WEBSITE IS A HOUSE.

- **HTML =** the frame, the structure, the solid THINGS of the house
- **CSS =** the paint color, the trim on
the windows, the shape of the doors, the STYLE of the house
- **JS =** the verbs, anything that functions and: windows opening, doors locking, blender and washing machine

HTML = Hypertext Markup Language, content

CSS = Cascading Style Sheets, set of rules

DOM = Document Object Model, the PAGE

D3.js works by **SELECTING** things in the **DOM,** and making alterations to their style and function.

JS **LISTENS** for **EVENTS** from the user and changes the page with the rules you made.