See How the Dixie Fire Created Its Own Weather

This year’s largest blaze generated powerful storm clouds. We show you in 3-D.

By Noah Fienberg, Noah Kramer, Nicholas Bertolet, Evan Gudiño,
David Wang, and the Firelab and South Fire

Oct. 22, 2021
The reading on layering and separation was likewise interesting. There was an example, in which vertical box and whisker plots were minimized to vertical lines and dots that represented the averages. While I agree that this reduces the noise in the plot, it makes comparing the plots much harder. Where should we draw the line between reducing noise and oversimplifying a visualization?

... a question that I have is: would drawing a diagram or map in 3D be another effective way to layer information? I imagine that the extra layer of depth and perspective can enhance the sense of relation between multiple objects. If so, is modeling a visualization in 3D feasible?
Graphical Perception [Cleveland and McGill 1984]

GESTALT
GESTALT PRINCIPLES

- figure/ground
- proximity
- similarity
- symmetry
- connectedness
- continuity
- closure
- common fate
- transparency

FIGURE/GROUND

Principle of surroundedness
Principle of relative size

Ambiguous

http://www.aber.ac.uk/media/Modules/MC10220/visper06.html
FIGURE/GROUND

Ambiguous

Unambiguous

http://www.aber.ac.uk/media/Modules/MC10220/visper06.html

PROXIMITY

[Ware 2000]
SIMILARITY

Rows dominate due to similarity [Ware 2004]

SYMMETRY

Bilateral symmetry gives strong sense of figure [Ware 2004]
**CONNECTEDNESS**

Connectedness overrules proximity, size, color shape [Ware 2004]

**CONTINUITY**

We prefer smooth not abrupt changes [Ware 2004]

Connections are clearer with smooth contours [Ware 2004]
CONTINUITY: VECTOR FIELDS

Prefer field that shows smooth continuous contours [Ware 2004]

CLOSURE

We see a circle behind a rectangle, not a broken circle [Ware 2004]

Illusory contours [from Durand 2002]
COMMON FATE

Dots moving together are grouped

http://coe.sdsu.edu/eet/articles/visualperc1/start.htm

TRANSPARENCY

Requires continuity and proper color correspondence [Ware 2004]
CHANGE BLINDNESS

Example from Palmer 1999, originally due to Rock
Choosing effective visual encodings requires knowledge of visual perception

**Visual features/attributes**
- Individual attributes often preattentive
- Multiple attributes may be separable, often integral

**Gestalt principles** provide higher level design guidelines

We don’t always see everything that is there
ANNOUNCEMENTS

ASSIGNMENT 3: INTERACTION

Due Today

Create a small interactive dynamic query application similar to HomeFinder, but for local software companies data.

1. Implement interface
2. Submit the application as a website and a short write-up on canvas

Can work alone or in pairs
FINAL PROJECT
Proposal due 11/6 11:30am

Data analysis/explainer
Analyze dataset in depth & make a visual explainer

Deliverables
An article with multiple different interactive visualizations
Short video (2 min) demoing and explaining the project

Schedule
Project proposal: Mon 11/6
Design Review and Feedback: 9th week of quarter
Final code and video: Sun 12/10 8pm

Grading
Groups of up to 3 people, graded individually
Clearly report responsibilities of each member

Learning Objectives
1. How stories are constructed in journalism and especially with data.
2. Using interactivity and sequencing to visually convey narrative.
STORYTELLING

ALL MEDIA TELL STORIES

- PEOPLE TELL STORIES
- WORDS TELL STORIES
- IMAGES TELL STORIES
- COMICS TELL STORIES
- MOVIES TELL STORIES
- VISUALIZATIONS TELL STORIES
narrative (n): An account of a series of events, facts, etc., given in order and with the establishing of connections between them

"... require[s] skills like those familiar to movie directors, beyond a technical expert's knowledge of computer engineering and science."

- Gershon & Page '01

**Generals Wary of Move to Cut Their Ranks**

By GINGER THOMPSON and THOM SNAKER

WASHINGTON — Maj. Gen. Paul D. Eaton, a retired Army officer, is familiar with the perks and pitfalls of power, having commanded tens of thousands of troops at Fort Benning, Ga., managed budgets exceeding $2 billion in Iraq, and overseen layers upon layers of staff members who helped manage both his professional duties and his personal life.

He has experienced the full range of lifestyles that come with military leadership, living at one point in an elegant antebellum mansion, and at another, with eight other officers crowded in a marble bathtub behind one of Saddam Hussein's old palaces.

When he traveled, he was occasionally able to justify the use of military aircraft, but most times, he said, he flew coach. And today he lives on a pension worth 75 percent of his military salary, with health benefits that cover everything except dental and eye care for himself and his wife.

“We are well compensated, and we live very comfortable lives,” General Eaton said, referring to the military's most senior leaders. “But when you look at all the things going on around a general, the nation is getting a very, very high return on its money.”

Not everyone at the Pentagon agrees. Two weeks ago, Defense Secretary Robert M. Gates announced a sweeping effort to improve efficiency that, among other things, takes aim at the military's sacrosanct corps of generals and admirals, ordering his staff to cut at least 50 positions, and making clear that he would be happier if they cut more.
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Anecdotal Lead (1st paragraph called Lede)

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Nut Graph

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Montage / editing
• Prescribed order
• Where you look explicitly directed
• Little reader/viewer agency

Ensemble staging / direction
• Less prescribed order
• Salience, structure nudges you to look
• More reader/viewer agency
DESIGN SPACE OF NARRATIVE VISUALIZATION

58 CASE STUDIES

70% Journalism
20% Business
10% Research

[Segel & Heer 2010]
Genres for Narrative Visualization [Segel & Heer 2010]
These ultimate branches of the tree are called **leaf nodes**. Our decision tree models will classify the homes in each leaf node according to which class of homes is in the majority.

http://www.r2d3.us/visual-intro-to-machine-learning-part-1/
**SLIDE SHOW**


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**Budget Forecasts, Compared With Reality**

Just two years ago, surpluses were predicted by 2012. How accurate have past White House budget forecasts been?

*Falling short*

President Obama’s budget proposal estimates a deficit of $1.6 trillion for the current fiscal year and $1.3 trillion in 2011.
Scientists who study the transmission of respiratory illnesses like influenza say that infections typically happen when a healthy person comes into contact with respiratory droplets from an infected person's cough, sneeze or breath.

Author driven
Prescribed ordering
Stronger messaging
Limited interactivity

Interactive Slideshow

**Author driven**
- Prescribed ordering
- Stronger messaging
- Limited interactivity

**Reader driven**
- Multiple orderings
- Less messaging
- More open interactivity

[Interactive Slideshow]

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Major Prison Camps

The existence of five main camps has been confirmed by survivors, escapees and former guards. Most prisoners work 12-hour days, making military uniforms, felling trees or tilling fields until they die of malnutrition-related illnesses, usually before the age of 50. North Korea allows no outsiders into the remote, mountainous camps.

Learn more about five major prison camps at right, or take a closer look at life in Camp 15.

**DRAW YOUR EXPECTATIONS**

*You Draw It: How Family Income Predicts Children's College Chances*

How likely is it that children who grow up in very poor families go to college? How about children who grow up in very rich families?

We'd like you to draw your guess for every income level on the chart below.

If you think the chances of attending college (or vocational school) are about the same for everyone, you should draw something like this:

| —— | —— | —— |

If you think the odds are especially harsh for children from the poorest families, but higher for middle- and higher-income children, your drawing would instead look like this | —— | —— | —— |

Or if you think the odds — or dips — for the very rich...

When you've finished drawing, we'll compare your line to the reality for children in the United States based on new data from the 

TheyDrawIt!  An authoring tool to create belief-driven visualizations

Date/Time Column
- Month
- Day
- Year
- Time

Label
- Name
- Email
- Phone
- Family
- City
- State
- Zip

Predict

Prediction Measure
- Family
- Other
- Race
- Gender

Prediction Label
- Family
- Other
- Race
- Gender

Range
- All
- Custom

Social

Display other predictions
- All predictions will be shared and can be shown to readers.
- Choose how you would like to display others’ predictions to the reader.

Choose an option to see a simulated preview of what other predictions might look like.

Publish & Share

Publish
- Click the button to publish your project.

Share
- Click to share a direct link to your TheyDrawIt visualization.

Embed
- Copy the embed code and paste it on your site where you want your visualization to appear.

https://theydrawit.mucollective.co/

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I’m comfortable if a social media website…

- Collects detailed personal information about me, like my gender and interests
- Allows them to share this info with third parties
- Shows targeted advertising
- Sends me unsolicited customer communications

SIMULATIONS

https://www.washingtonpost.com/graphics/2020/world/corona-simulator/

Watch how the measles outbreak spreads when kids get vaccinated - and when they don't

- Vaccinated
- Susceptible
- Vaccinated but susceptible
- Infected
- Contact with an infected person

- 74.4% vax rate, similar to Island County, WA
- 83.8% vax rate, similar to Santa Cruz County, CA
- 86.0% vax rate, similar to Los Angeles County, CA
- 90.0% vax rate, similar to Orange County, CA
- 95.7% vax rate, similar to Gadsden County, FL
- 70.6% vax rate
- 30.0% vax rate
- 50.0% vax rate
- 58.5% vax rate, similar to Okanogan County, WA
- 68.9% vax rate, similar to Thurston County, WA

NOT PROTECTED

10.6% vax rate

NOT PROTECTED
**Who Should Get Parole?**

Even the best risk assessments yield probabilities, not certainties. That means they label as “high risk” some people who won’t commit another crime and label as “low risk” some people who will. This simulation lets you sort offenders into risk categories based on the results of an assessment. Think we should rarely lock up anyone who wouldn’t be reoffended? Set the “low risk” threshold high and the “high risk” threshold even higher. Have little tolerance for recidivism? Try the opposite. In the real world, policymakers have to strike a balance. Read more...

1. **Prisoners in this simulation are up for parole. Some will eventually be released and some won’t. They each take an assessment, which estimates the chance they will reoffend.**

2. **Prisoners are placed in one of three categories based on those estimates. Some or the divisor can change the cutoffs for each category. “Low risk” prisoners will be awarded parole. “High risk” prisoners will be denied.**

3. **Some people you let out reoffend. Some people you left in prison should have been out. How do you feel with the results?**

**AWARDED PAROLE**

- 18%

**DENIED PAROLE**

- 14%

**Low Risk**

- 22%

**Medium Risk**

- 20%

**High Risk**

- 14%

**Parole-Eligible Prisoners**

- Will not reoffend
- Will reoffend