

# lecture 10: hand-drawn and artistic visualizations

October 18, 2017

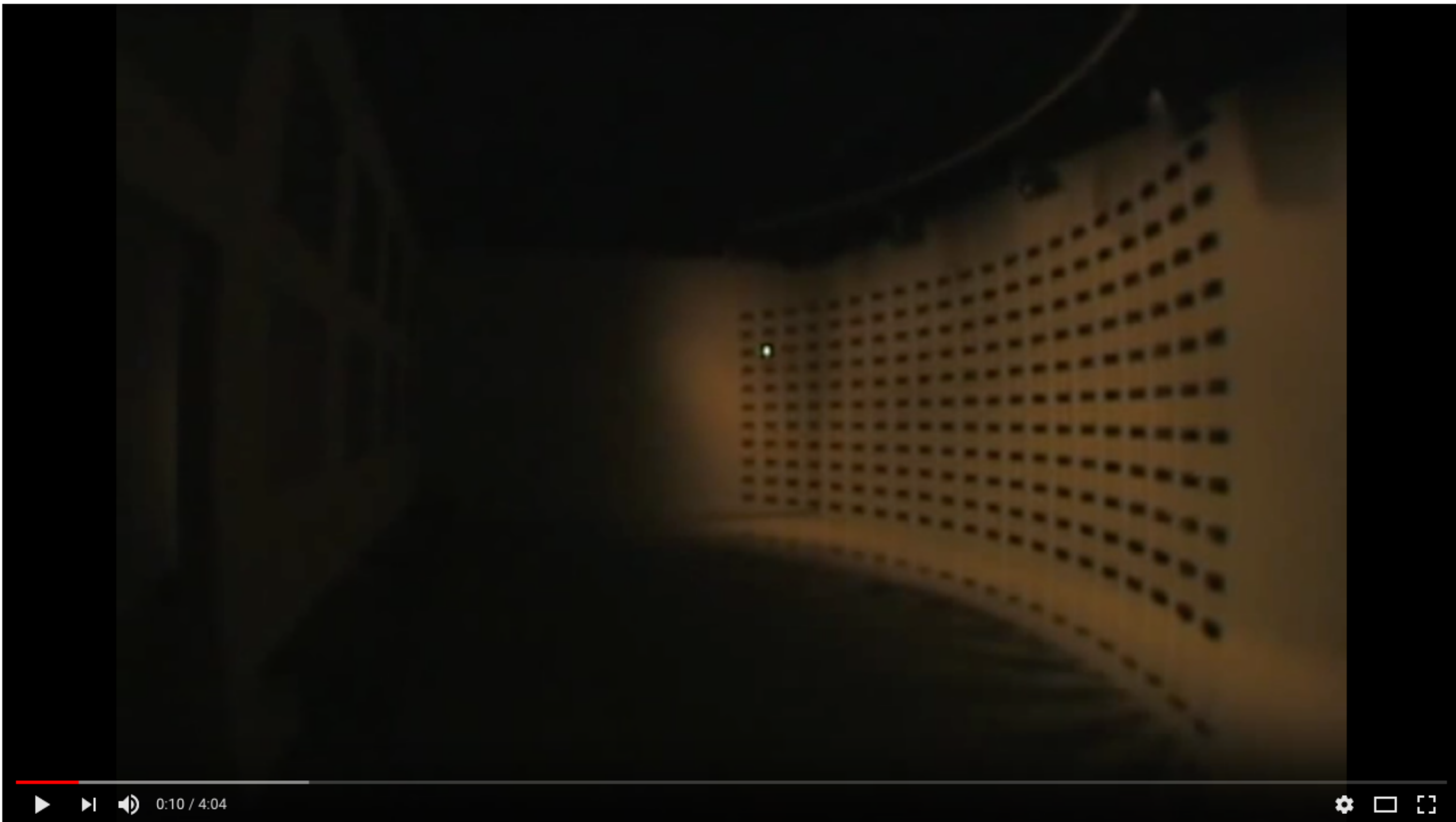
Data art

# Lillian Schwartz



LILLIAN  
SCHWARTZ

# Mark Hansen and Ben Rubin





# Mark Hansen and Ben Rubin





DEMOGRAPHICS

POSE

FEATURES

MOOD

**Moritz Stefaner**

**CITY** [World map]

**AGE** YOUNG [Graph] OLD

**GENDER** [Female icon] [Male icon]

**LOOKING** UP [Arrow] DOWN [Arrow] LEFT [Arrow] RIGHT [Arrow]

**TILT** LEFT [Arrow] RIGHT [Arrow]

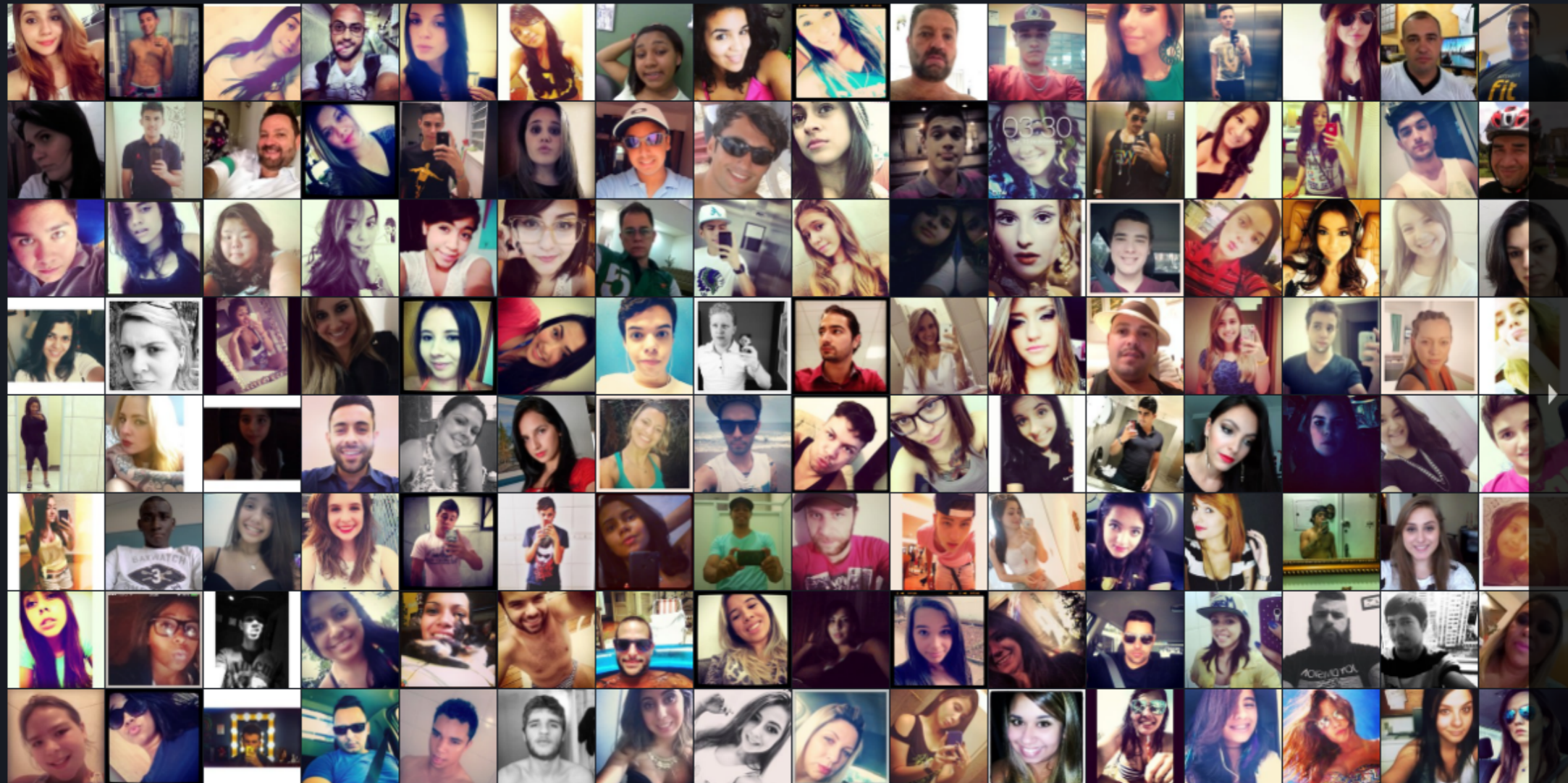
**EYES** OPEN [Circle] CLOSED [Circle]

**MOUTH** OPEN [Circle] ? [Circle] CLOSED [Circle]

**GLASSES** NO [Circle] YES [Circle]

**MOOD** CALM [Graph] ANGRY [Graph] HAPPY [Graph]

3840 of 3840 selfies.



Self-tracking

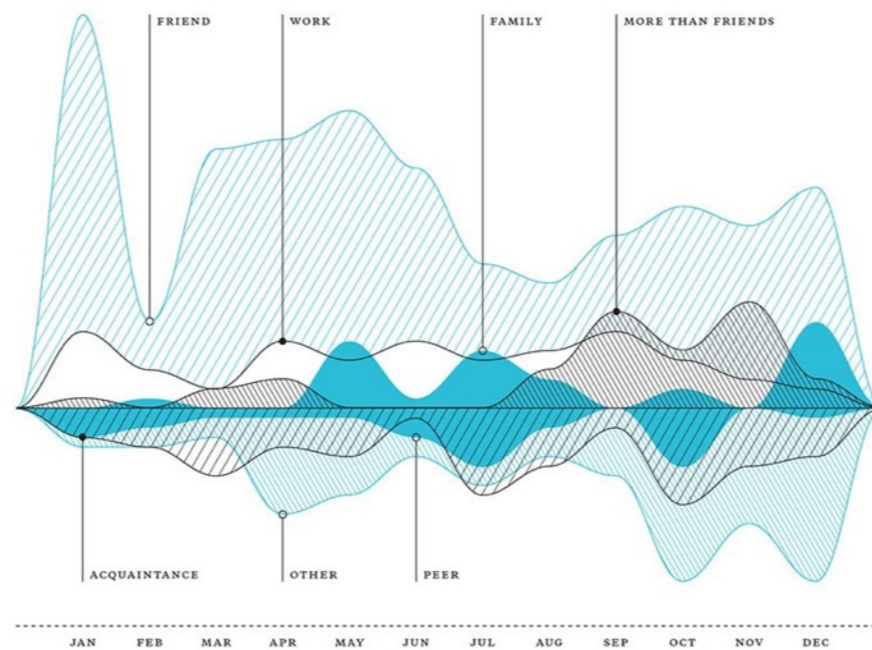


# Nicholas Felton

## Relationships

Reporting on the reporters.

FIGURE 3. RELATIONSHIPS REPORTED



QUESTION 1. WHAT IS YOUR RELATIONSHIP TO NICHOLAS?

- Friend / esteemed colleague.*  
RYAN C, JANUARY 12
- Internet buddy.*  
NOAH, FEBRUARY 18
- Grill master.*  
WARREN, MAY 10
- Drinking buddy.*  
HANA, JUNE 12
- Double-digit sociability.*  
OLGA, SEPTEMBER 17
- Ex-wife.*  
NICK B, OCTOBER 21
- Statistic.*  
KEVIN L, DECEMBER 21
- Dentist.*  
JOHN B, DECEMBER 23

QUESTION 2. HOW LONG HAVE YOU KNOWN NICHOLAS?

- A year, come February 22.*  
ELISE, JANUARY 26
- Since Summer 2004.*  
MARGARET, FEBRUARY 9
- 17 days at the time of recording.*  
IAN A, MARCH 14
- About three hours*  
ACE JET 170, APRIL 2
- 5 years, my whole life.*  
JULIAN, APRIL 12
- Sixty four days.*  
JESSICA B, APRIL 19
- Since birth.*  
CAROL, MAY 15
- Since I was a teenager?  
Could that be?*  
MARIANA, SEPTEMBER 1
- Years... I'm bad with time.*  
MELISSA, NOVEMBER 20

SHORTEST RELATIONSHIP

**5 Mins**  
ERIC, MAY 15

LONGEST RELATIONSHIP

**Forever**  
ELISE, JAN 7

AVERAGE RELATIONSHIP DURATION

**About 3 Years**  
3 YEARS, 3 MONTHS AND 22 DAYS

MOST COMMON RELATIONSHIP

**Friend**  
234 REPORTS

STUDENT TO TEACHER RATIO

**3:1**  
6 STUDENTS, 1 TEACHER AND 1 BIRDING INSTRUCTOR

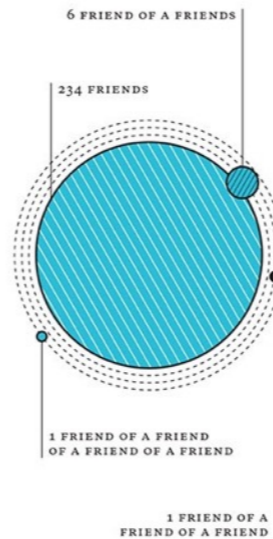
DISTINCT RELATIONSHIPS

**179**

NO RELATIONSHIP REPORTED

**Eight**

FIGURE 4. DEGREES OF FRIENDSHIP



# Nicholas Felton

An encounter with Nicholas Felton  
has entitled you to participate  
in the Feltron 2009 Annual Report.

.....

KINDLY RECORD YOUR OBSERVATIONS  
BY VISITING THE URL ON THE REVERSE.

09 ANNUAL REPORT CARD

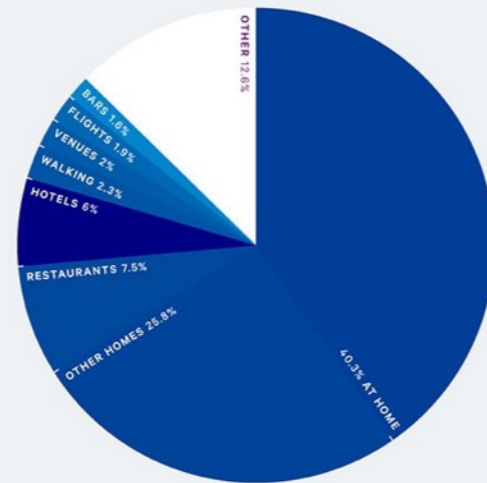
PHOTO: NICK SHER



# Nicholas Felton

## With Olga

EVERYWHERE



### DAYS TOGETHER

**191¼**  
315 different encounters

### MOST TIME SPENT TOGETHER

**MANHATTAN** — 83% DAYS

**BROOKLYN** — 51% DAYS

**MILL VALLEY** — 9 DAYS

**ANCHORAGE** — 7% DAYS

**SYDNEY** — 4% DAYS

### MOST VISITED PLACE TOGETHER

**Old Apartment**  
194 visits

### DIFFERENT CITIES VISITED TOGETHER

**56**  
In 3 countries, 9 states and Washington DC.

### FAVORITE BEVERAGES WITH OLGA

**FILTER COFFEE** — 111 SERVINGS

**RED WINE** — 78 SERVINGS

**DALE'S PALE ALE** — 35 SERVINGS

**CHAMPAGNE** — 30 SERVINGS

**LATTE** — 26 SERVINGS

### TIME TOGETHER



### BRIEFEST MONTH TOGETHER

**June 2011**  
40% hours

### MOST CONSECUTIVE HOURS TOGETHER

**247**  
Australia trip — February 2010

### TIME SPENT WITH OLGA AND...

**SARAH** — 6% DAYS

**MOM** — 6% DAYS

**BRIAN** — 5% DAYS

**OLGA'S MOM** — 5 DAYS

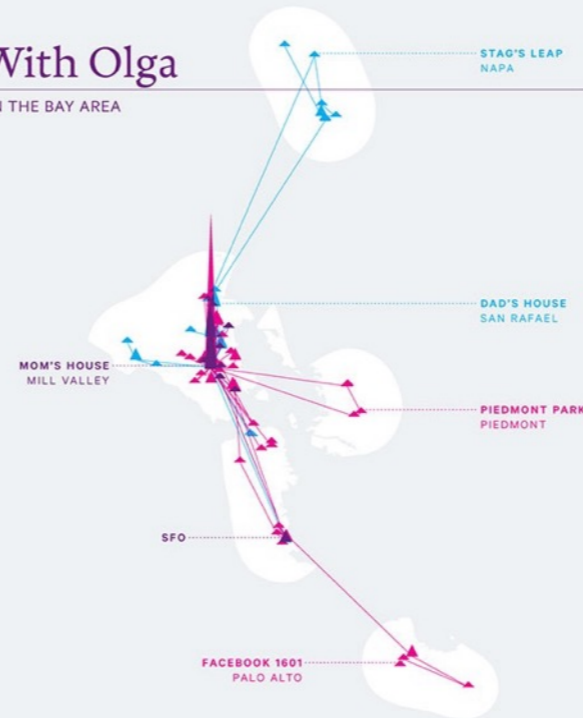
**RYAN** — 4% DAYS

### WEDDINGS ATTENDED TOGETHER

**Seven**  
Aaron & Jessica, Charlie & Bret, Glenn & Mariana, Lewis & Ange, Randy & Allison, Rob & Elise and Toby & Harriet

## With Olga

IN THE BAY AREA



### DAYS TOGETHER IN THE BAY AREA

**13½**  
Approximately 7% of total time together

### BAY AREA PLACES VISITED TOGETHER

**77**  
18 stores, 13 restaurants, 10 homes, 6 outdoor places, 3 coffee shops, 3 grocery stores, 2 airport terminals, 2 bars, 2 gas stations, 2 hospitals, 2 hotels, 2 liquor stores, 2 parking garages, 2 parking lots, a cinema, a deli, a drug store, a laundromat, a library, a museum, a park and work

### FAVORITE BAY AREA BOTTLESHOP

**Vintage Wine & Spirits**  
Visited twice

### FAVORITE BAY AREA BEER WITH OLGA

**Lagunitas IPA**  
5 servings

### BAY AREA MUSEUMS VISITED TOGETHER

**The Exploratorium**  
With Marina — July 9, 2011

### MOST PLAYED ARTIST TOGETHER

**The Beach Boys**  
25 songs listened to from *Christmas with the Beach Boys*

### TIME TOGETHER IN THE BAY AREA



### MOST FREQUENTED CITY TOGETHER

**Mill Valley**  
68% of time in the Bay Area

### MOST VISITED BAY AREA PLACES

**MOM'S HOUSE** — 35 VISITS

**MARIN GENERAL HOSPITAL** — 6 VISITS

**CHEVRON MILL VALLEY** — 5 VISITS

**SFO INTERNATIONAL TERMINAL** — 4 VISITS

**DAD'S HOUSE** — 3 VISITS

### CRISES INVOLVING A TICK

**One**  
Spotted by Olga, removed by Mom

### MOST VISITED RESTAURANTS TOGETHER

**Le Garage, Picante and Sushi Ran**  
Each visited twice

# Nicholas Felton



**Amelia McNamara**

@AmeliaMN



"I silenced all the other nonsense on my phone" to focus on data collection. @feltron #eyeo2013 #eyeo

2:08 PM - 7 Jun 2013

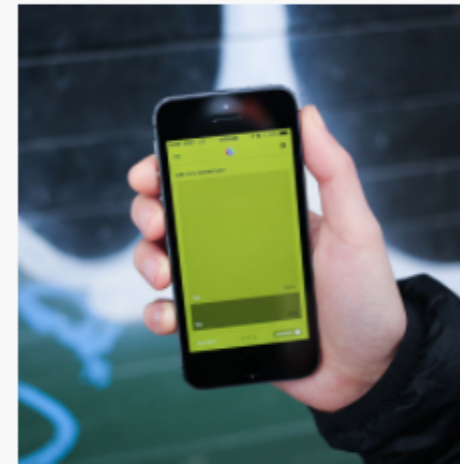
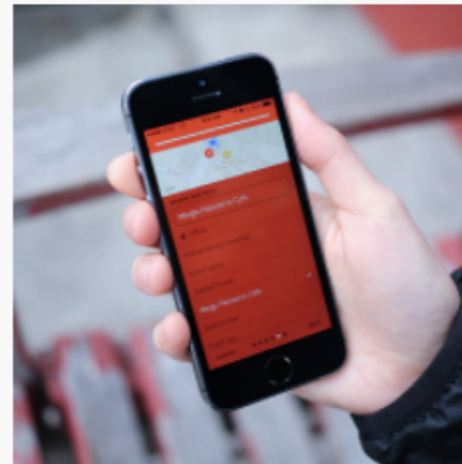


# Nicholas Felton

Feltron

Shop

Info



## Reporter

Reporter is a self-tracking application for iPhone based on the idea that less is more. A system of infrequent measurements at random intervals allows the app to reveal insights with minimal effort. In 2012, a prototype of Reporter was extremely effective in collecting data for the [2012 Annual Report](#). This robustness of this approach inspired a public release of Reporter that is customizable and able to visualize responses, illuminating aspects of a user's life that might otherwise be unmeasurable.

### Released

February 6, 2014

### Description

Developed with Drew Breunig and Friends of the Web

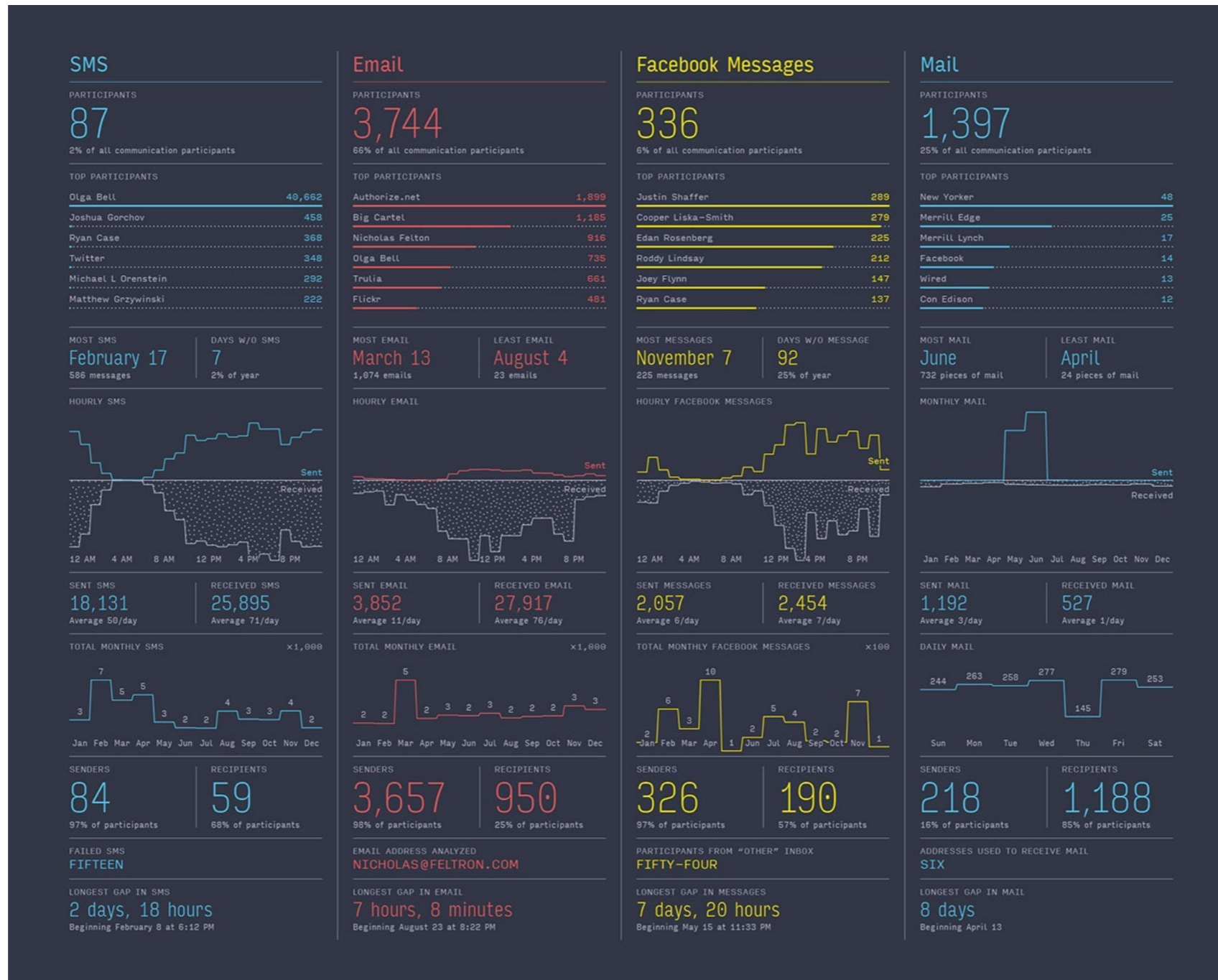
### Awards

2014 Fast Company, Innovation by Design: Best App

### Exhibitions



# Nicholas Felton





# Nicholas Felton



# Nicholas Felton



**Amelia McNamara**

@AmeliaMN



If you held the door for me at the end of the day, and I didn't want to record it, I might not have said thank you. -Felton #eyeo2014

1:16 PM - 11 Jun 2014

1 Like



# Tim Clark

## ATLAS OF THE HABITUAL

### Project Statement

Commuting	August
Eating	September
Drinking	October
5:27pm	November
Exploring	December
Photography	January
Skiing	February
XC skiing	March
Hiking	Weekends
Bike riding	Weekdays
"The Suburbs"	TGIF
On lunch	US holidays
In the news	New moon
Running errands	Full moon
Winter boots	First 50 days
Rain	Last 50 days
Snow	Kate
Weak Signal	Sarah
Blue hoodie	Zannah
Dirty underwear	Sam
Forgetting something	Austin
Unpleasantries	Carrie
I thought this was Vermont	Cora
Tour guide	Chris
Walking the dog	Dale
Reliving the breakup	Parents
Dating	College friends
Escaping to the city	Meeting new people
Major roads	60+ maps and counting...

The times I was the most miserable. Includes the time I got pulled over and received a speeding ticket, saw a dead deer fall off the back of a pickup truck, got frustrated for driving past a hiking trailhead several times, running my car into a snowbank, driving 40 miles on a tire donut because I hit an eight-foot ladder in Albany NY, and having to walk my bike because it either broke in some way. Total distance on map: 22.99 miles





Hand drawn viz

“Few would deny the most powerful  
statistical tool is graph paper.”

- Watson

Smooth Regression Analysis, 1964

**basic ideas of plotting**

With box-and-whisker plots we are beginning our plotting education. The first thing we need to do is separate, in our mind, what it takes to make plotting easy from what it takes to make plotting effective. The lines ruled on graph paper help to make plotting easy, but they do not make plotting effective for seeing what is going on---instead they get in the way of seeing what we ought to see. (If we are using a graph as a substitute for a table---as a way to look up values of a function---things are likely to be different. This, however, is something we almost never need to do in exploratory data analysis.)

**tracing paper**

If we want to see what our plots ought to tell us, there is no substitute for the use of tracing paper (or acetate). If we slip a well-printed sheet of graph paper just below the top sheet of a pad of tracing paper, we can plot on that top sheet of tracing paper almost as easily as if it were itself ruled. Then, when we have the points plotted, some boundary or reference lines drawn, and a few scale points ticked, we can take away the graph sheet and look at the points undisturbed by a grid. We often gain noticeably in insight by doing this. (And we have had to pay for a sheet of tracing paper rather than for a sheet of graph paper.) Alternatively, we can plot on a sheet of graph paper and then trace the result.

In doing either of these we gain very much by having:

- ◇ well-printed graph paper, which means (a) good quality lines, (b) every 10th line heavy, (c) every 5th line medium heavy. ("Five and dime" graph paper or quadrille-ruled paper will make our work much harder. For more detailed discussion, see section 5A, below.)
- ◇ tracing paper that erases cleanly and easily (quality equal to that of the Clearprint Paper Co. of San Francisco is worth the difference).
- ◇ a transparent plastic rule or triangle.

An alternative that:

- ◇ can be even more effective,
- ◇ is no more expensive,
- ◇ takes a little more trouble to prepare for,

replaces the tracing paper by the thin sheets of transparent plastic (acetate) made for use in overhead projectors. Two cautions are important:

1. You can only use markers specially made for the purpose. (A number of manufacturers make satisfactory products, but it may not be easy to find any of them. The writer prefers the temporary---wash-off---styles to those that cannot be erased.)
2. It is important to keep one's fingers off the plastic until the picture is completed. (A piece of thin graph paper, placed upside down, works very well as a hand shield.)

**scale values**

We ought to put as many scale values on the graph paper preliminary as will help us make the plot easily. On the tracing paper final, however, we ought not show more than three or four numbers along a scale. More clutters up the picture and distracts the eye from what it ought to see. (Scales for dates are sometimes an exception. It can matter whether an appearance came in 1929 or 1928, in 1776 or 1775.)

People are used to scales on the left and below. So be it---for the picture, perhaps. When one is plotting the points, however, it is much more convenient to put the horizontal scale ABOVE the plot, where you do not have to move your hand to see it. (It would be rational to plot from detailed scales above and left, and to produce a final picture with a few scale points shown below and right; but such rationality is usually not worth the possibility of occasional confusion.)

**plotting without graph paper**

We almost always want to look at numbers. We do not always have graph paper at hand. **There is no excuse for failing to plot and look.**

We usually have ruled paper at hand. For emergency graph paper, take out one sheet of ruled paper, turn it on its side, and place it beneath another sheet of ruled paper. If these two sheets have a light-colored backing---often provided by the rest of the pad or notebook---the vertical lines on the lower sheet are almost certain to show through well enough, combining with the horizontal lines on the top sheet to form a grid on which plotting is reasonably easy. (The first step in this sort of plotting is to mark---by ticks or unobtrusive dots---enough information on the top sheet to make it easy to get the lower sheet back to its original position after it slips.)

With this technique, one can make useful, if not decorative, plots almost anywhere.

**review questions**

What is a box-and-whisker plot? What do its parts show forth? What rules does it obey about showing values individually? About identifying values? What must we separate in our minds about plotting? What are the essentials of convenient, effective plotting? How can we, in an emergency, plot without graph paper?

**2D. Fences, and outside values**

Hinges are for our convenience. They can---and will---serve various purposes for us. Their role in 5-number summaries is only the beginning.

When we look at some batches of values, we see certain values as apparently straying out far beyond the others. In other batches straying is not so obvious, but our suspicions are alerted. It is convenient to have a rule of

# Mona Chalabi



▼ YESTERDAY

✉ How much pee is a lot of pee?



▶ ⏪ 🔊 18:54 / 41:17





# Mona Chalabi



monachalabi

Follow

monachalabi If this data surprises you, there's an explanation on @guardian\_us today.

Source: Nielsen US consumption 2015, #datasketch #🍫 #easter

self\_righteous\_me I must consume.

piperblack @lisaliusa

olivierstephen I would have expected more for Halloween! Q

olivierstephen Will read the article tomorrow

lucian\_adamoli Fascinating feed



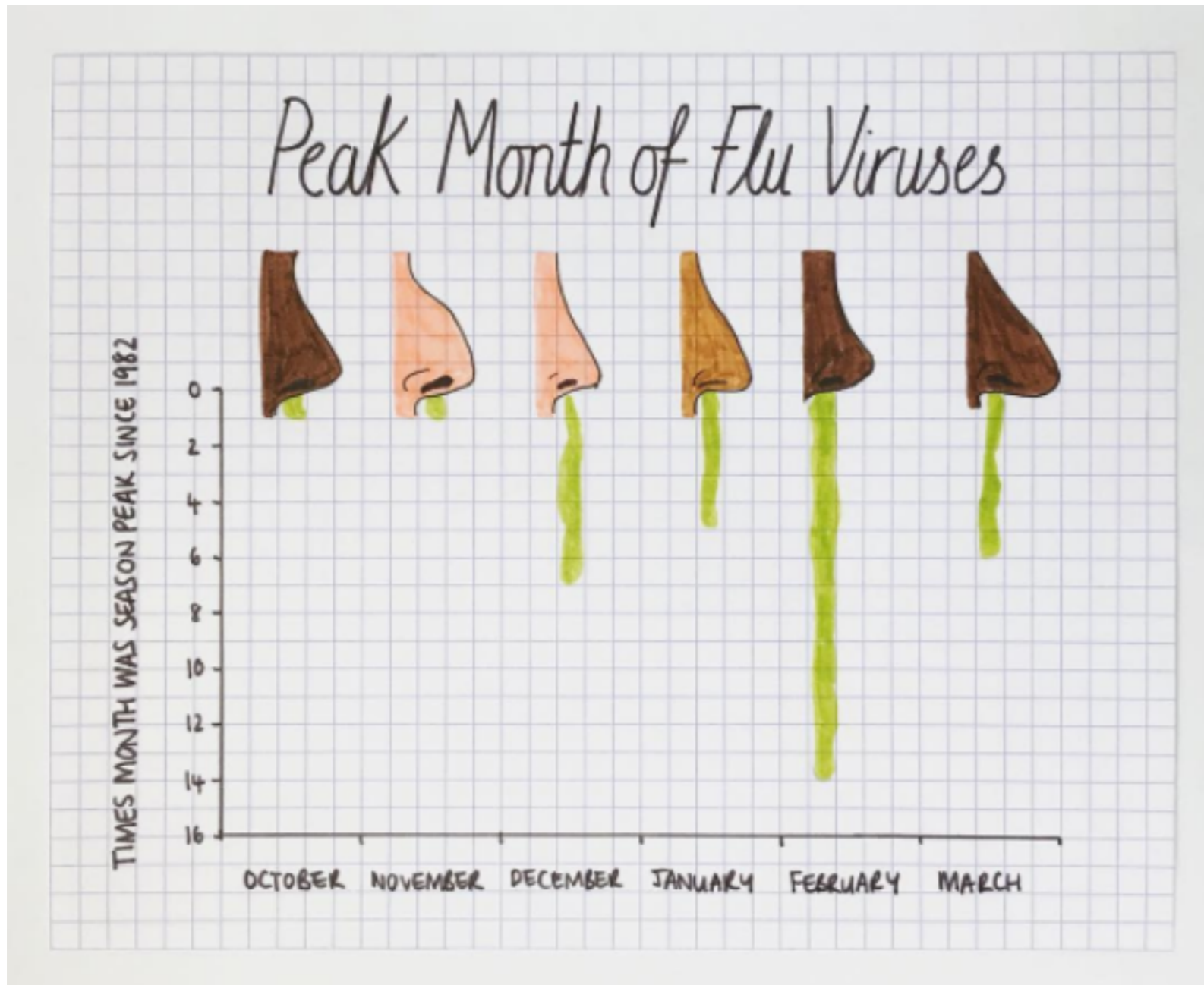
116 likes

MARCH 26, 2016

Add a comment...



# Mona Chalabi



monachalabi

Follow

monachalabi I've been sick in bed all week and wondered whether October is the worst month for it. It's not. This wasn't comforting.

Source: 35 years' worth of flu data from the Centers for Disease Control and Prevention, 2016 #datasketch

dominicrushe 🙄 hope you feel better soon.

monachalabi @dominicrushe thanks Dom! Feeling loads better, I'm actually going to venture into the outside world today.

michaelcarlson117 I feel like this could



389 likes

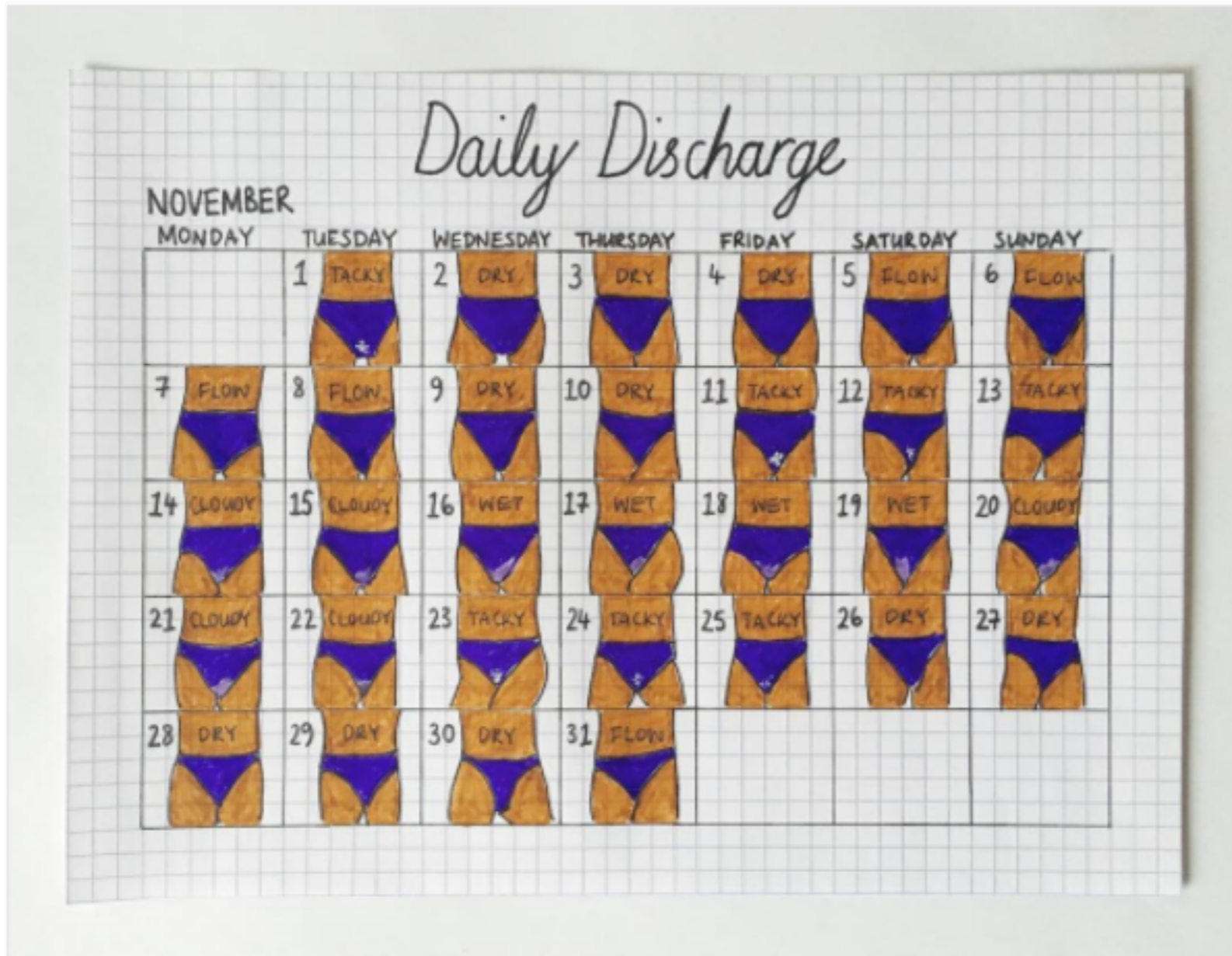
OCTOBER 8, 2016

Add a comment...





# Mona Chalabi



monachalabi

Follow

monachalabi Tomorrow, we're releasing episode 4 of #vaginadispatches and, as ever, me and @maeryan will talk about topics that can make us a bit uncomfortable. Like discharge, or as my mum so classily calls it, "cervical mucus". This is how it varies over a typical month. Keeping track of discharge can be used to help prevent pregnancy - women are least fertile from days 20 to 30.

Source: Planned Parenthood, 2016

#datasketch



320 likes

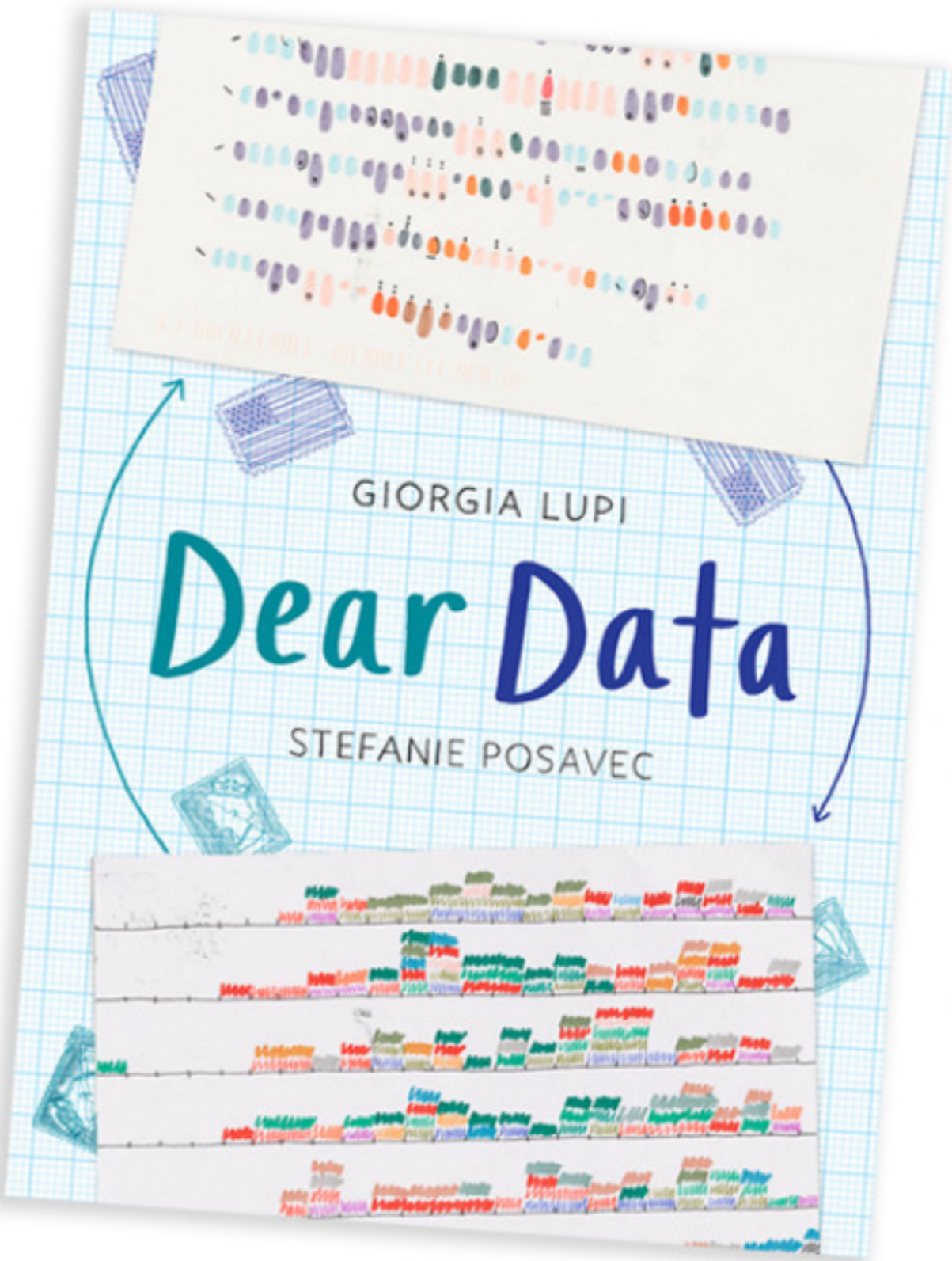
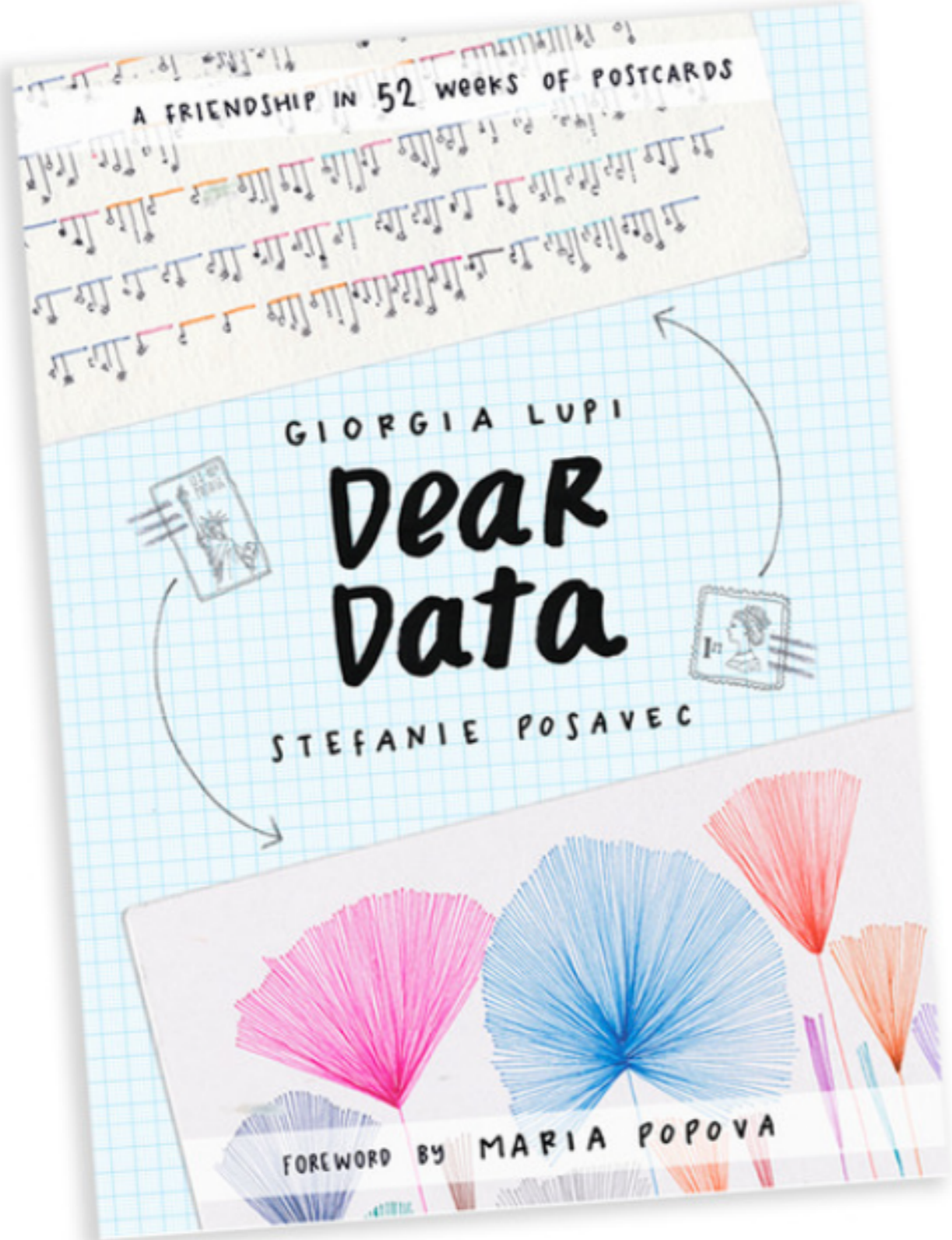
NOVEMBER 17, 2016

Add a comment...



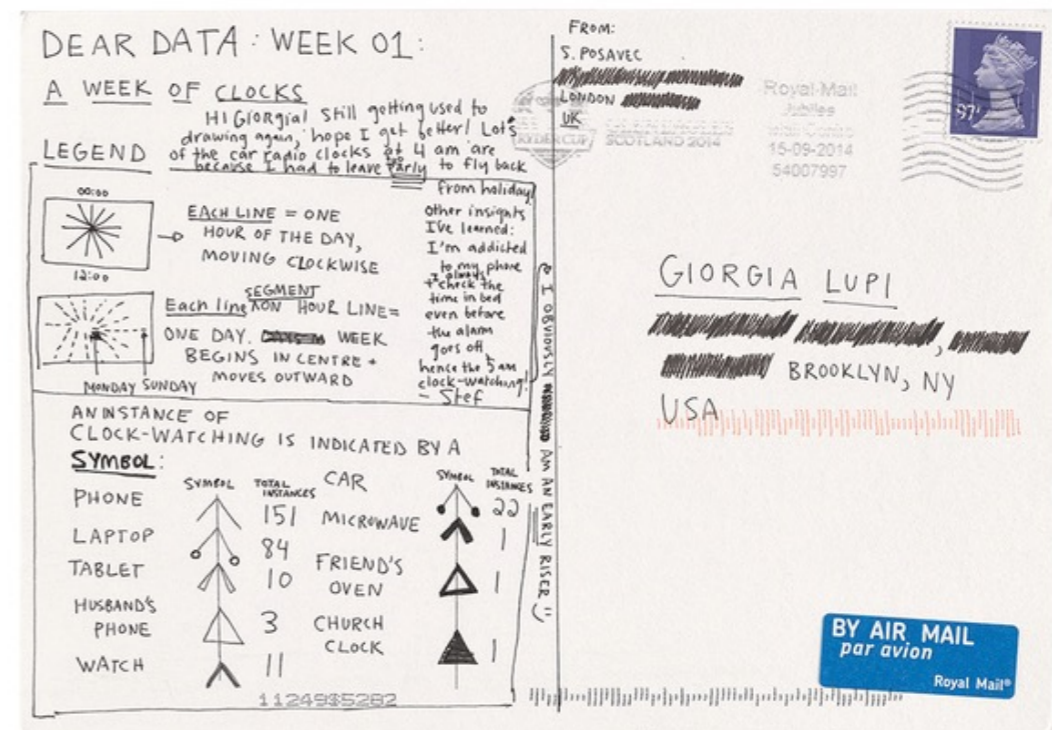
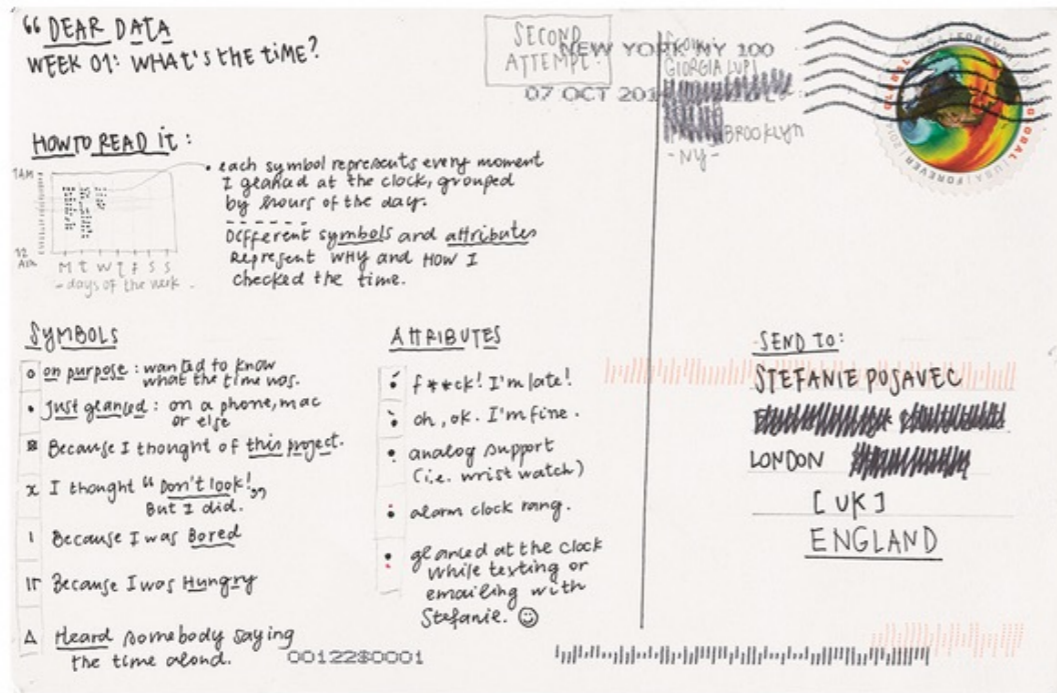


# Giorgia Lupi and Stefanie Posavec





# Giorgia Lupi and Stefanie Posavec



Drawing her first postcard, Giorgia had an idea for her whole collection: from now on every time she tracks something related to Stefanie, or to Dear Data, she uses a special pen to represent it!

• pink ink pen!

This week Giorgia and Stefanie tried gathering data in small notebooks (tedious), but soon switched to making notes on their phones (much easier). Stefanie's favourite clock to capture: a bell tolling the time in a town in Devon.





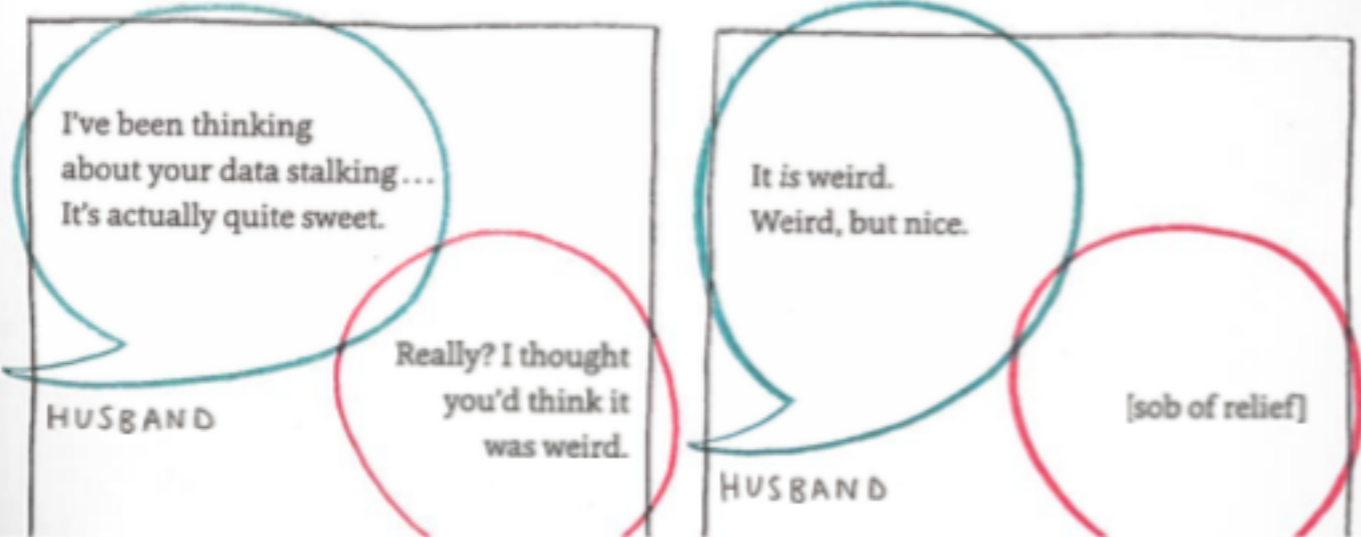


# Giorgia Lupi and Stefanie Posavec

## SUNDAY EVENING, BEFORE BED



## MONDAY, MAKING DINNER



# Jose Duarte





# Jose Duarte



# Jose Duarte



**Amelia McNamara**  
@AmeliaMN



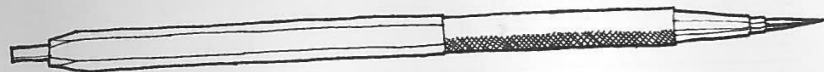
Physical dataviz of the World Happiness Index. From @joseduarteq's #easydataviz workshop at #dlc2017



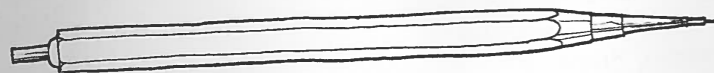
8:06 AM - 23 Sep 2017

Lab: Hand-drawn viz

# DRAWING PENCILS



This is the traditional leadholder. Due to its relatively thick lead it is capable of a variety of sharp line weights. The beginner should practice sharpening the point until he develops the ability to rotate the pencil sufficiently while drawing (see page 18).

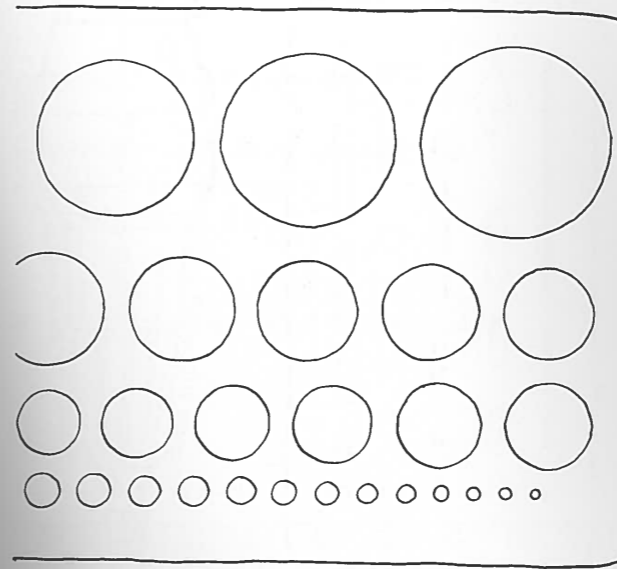


This mechanical pencil utilizes a .5 mm lead, which does not require sharpening. It is capable of consistently sharp, fine lines if you rotate it sufficiently while drawing. For relatively thick, bold lines you have to use a series of lines.

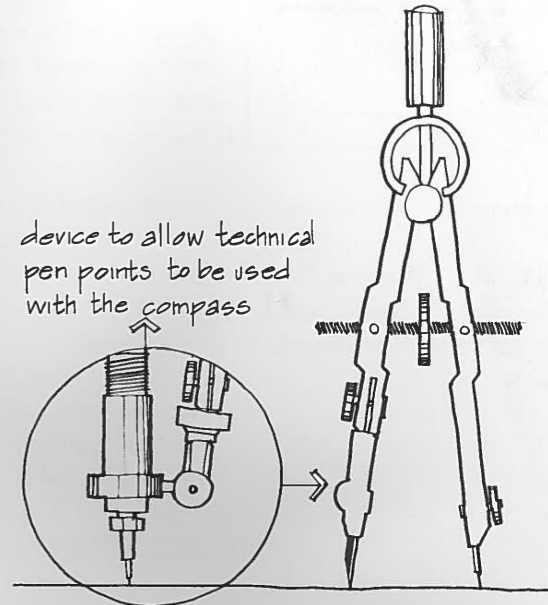


The common wood/lead pencil can also be used for drafting. The wood must be shaved back to expose  $\frac{3}{4}$ " of the lead shaft so that it can be sharpened like the leadholder.

All three types of pencils are capable of producing quality drawings. Your preference is a matter of choice and your particular skills.



the circle template is a time-saving device useful for small circles of even radii

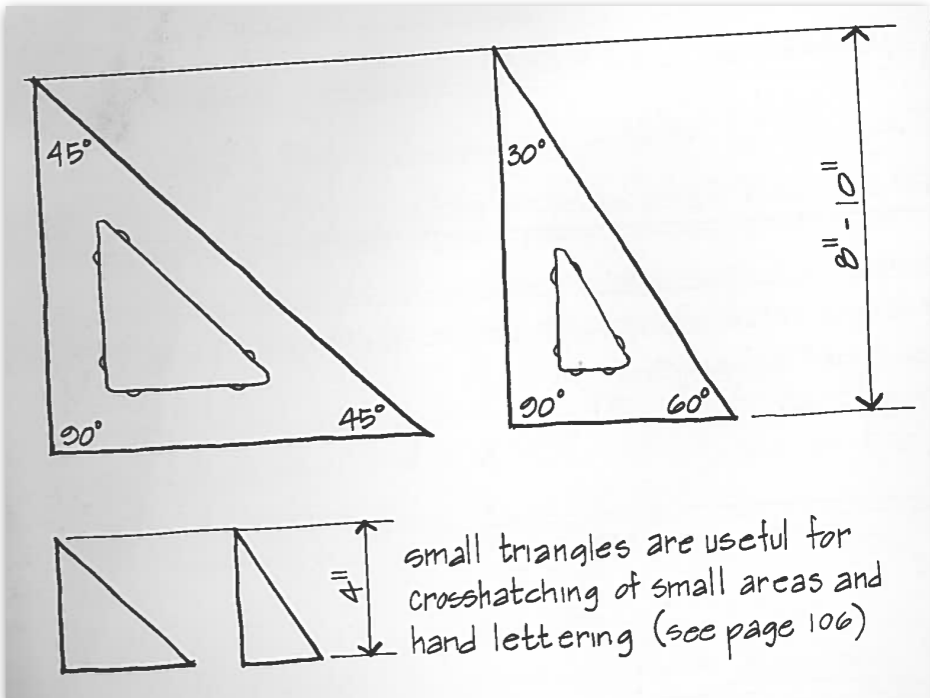


device to allow technical pen points to be used with the compass

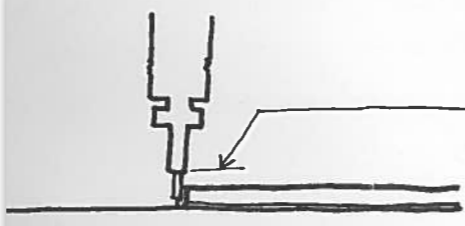
the compass is useful for circles of indeterminate radii, large circles, and most ink work

generally used

① sketch-grade	② medium-grade	③ quality grade	④ film
<ul style="list-style-type: none"> <li>• lightweight tissue</li> <li>• inexpensive</li> <li>• for sketching, doodling, quick overlays</li> <li>• Dietzgen 161 Y</li> <li>• Charette 903</li> </ul>	<ul style="list-style-type: none"> <li>• medium-weight/16-lb.</li> <li>• fine or medium tooth</li> <li>• for general layouts, preliminaries</li> <li>• Winston</li> <li>• Charette Bond</li> <li>• Boston Bond</li> </ul>	<ul style="list-style-type: none"> <li>• vellum/16- or 20-lb.</li> <li>• 100 percent rag</li> <li>• for finished drawings</li> <li>• Bruning 500</li> <li>• Clearprint 1000 H</li> <li>• Charprint 920 H</li> </ul>	<ul style="list-style-type: none"> <li>• .004" clear polyester film for clearest reproductions, permanence, and overlays</li> <li>• Dupont Mylar</li> <li>• Arkwright</li> <li>• Herculene</li> </ul>

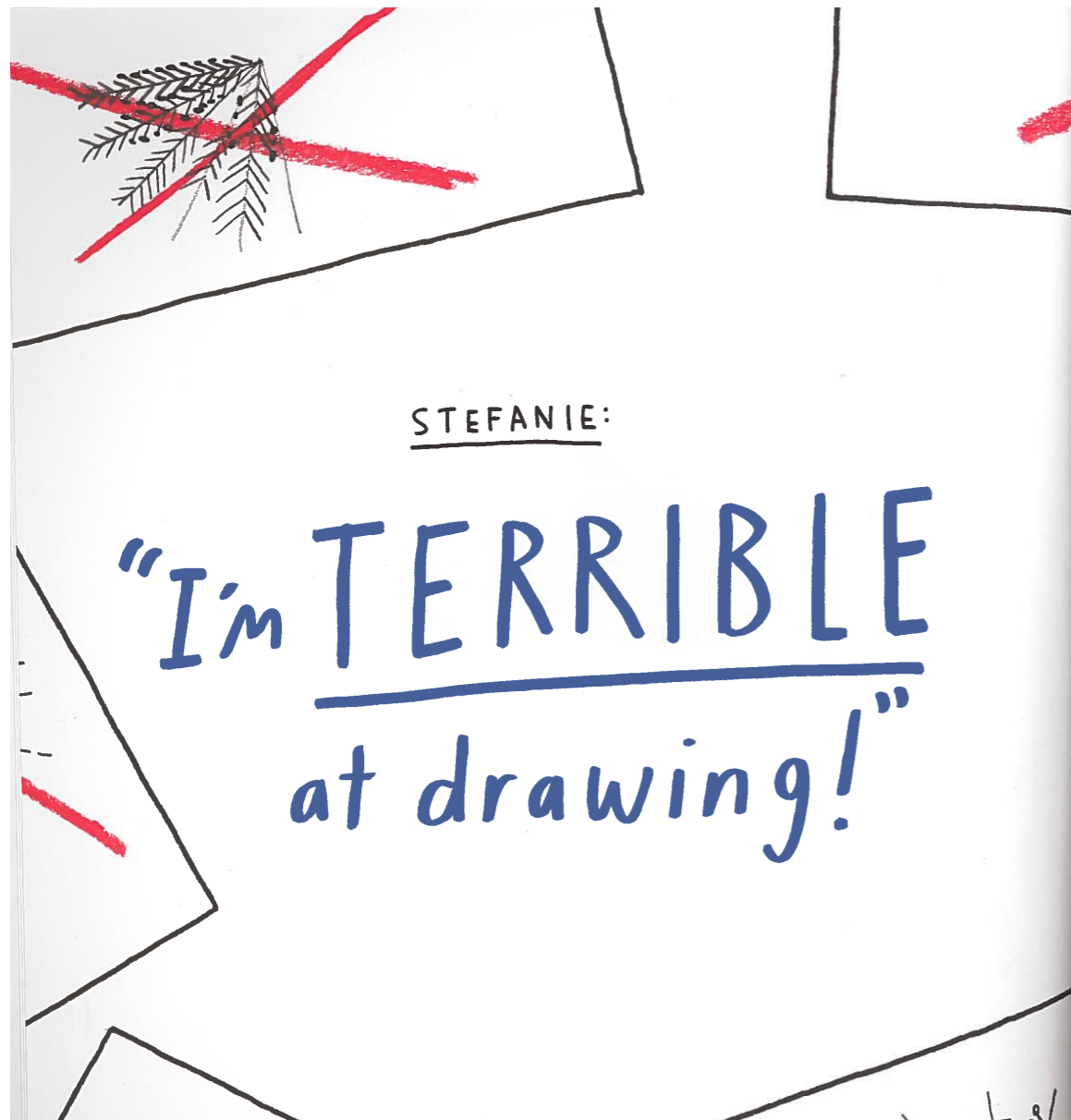


small triangles are useful for crosshatching of small areas and hand lettering (see page 106)



\* Make sure that the pen you use has a point tube that is long enough to clear the thickness of your triangles and straight edge.

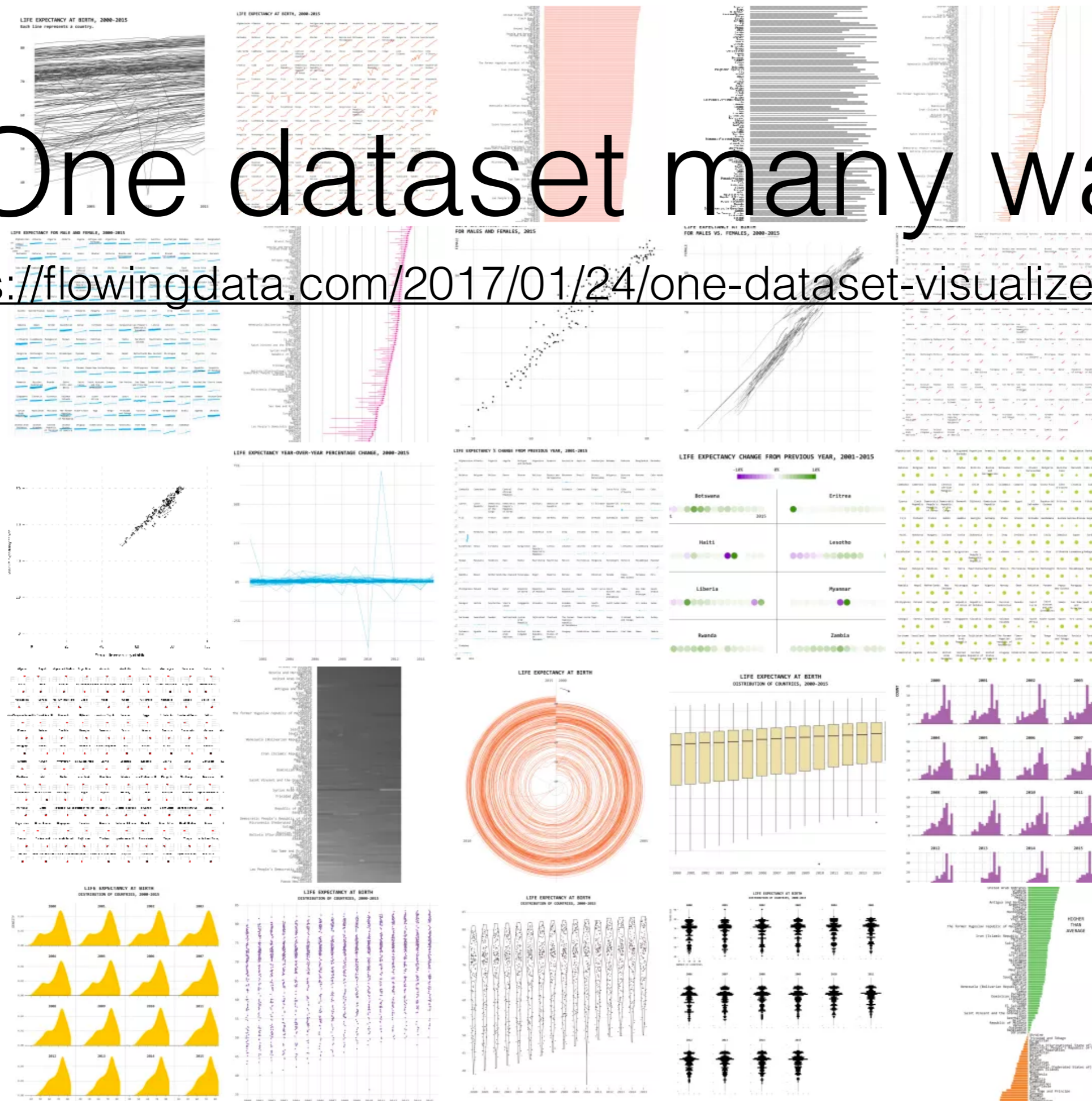
# Iterate and practice





# One dataset many ways

<https://flowingdata.com/2017/01/24/one-dataset-visualized-25-ways/>



- Make at least three sketches
- Settle on a final product
- Consider your design decisions
- Upload a photo/scan/screenshot to #lab4

# Smith student body diversity

<b>Category</b>	<b>Percent</b>
<b>White</b>	45
<b>Unknown</b>	8
<b>Hispanic</b>	10
<b>Asian</b>	12
<b>Black</b>	6
<b>Multiracial</b>	5
<b>International</b>	14