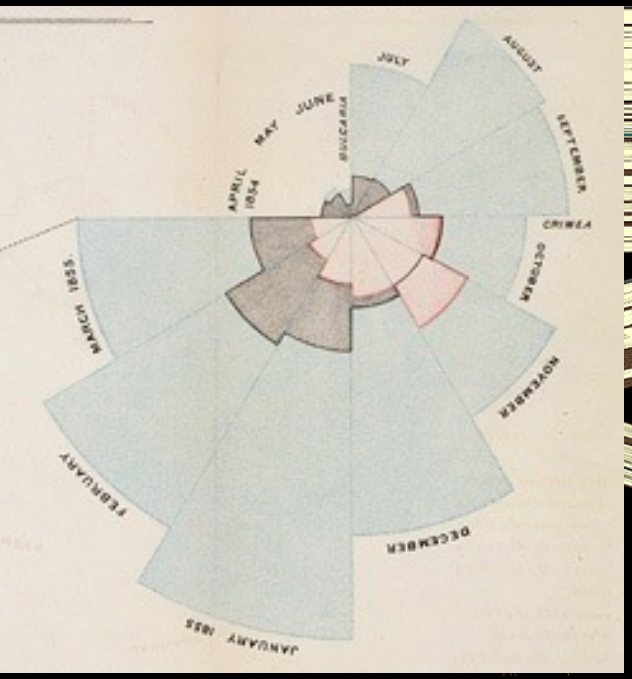
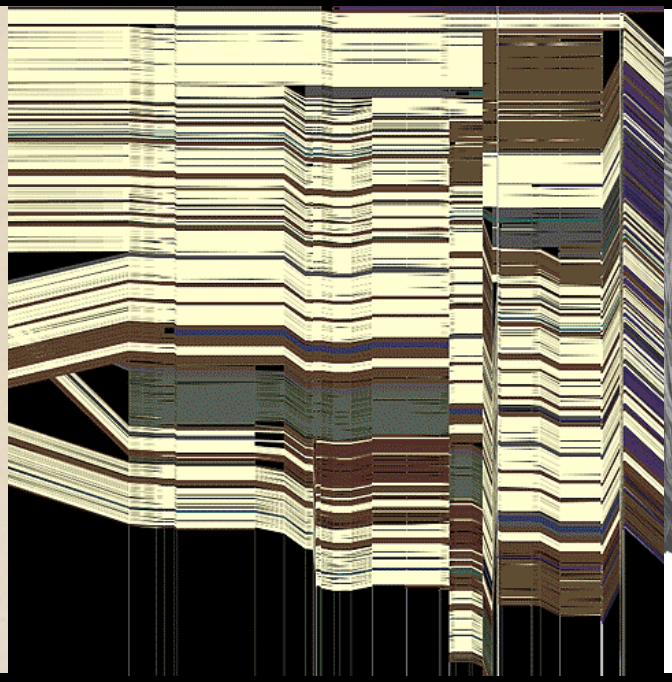
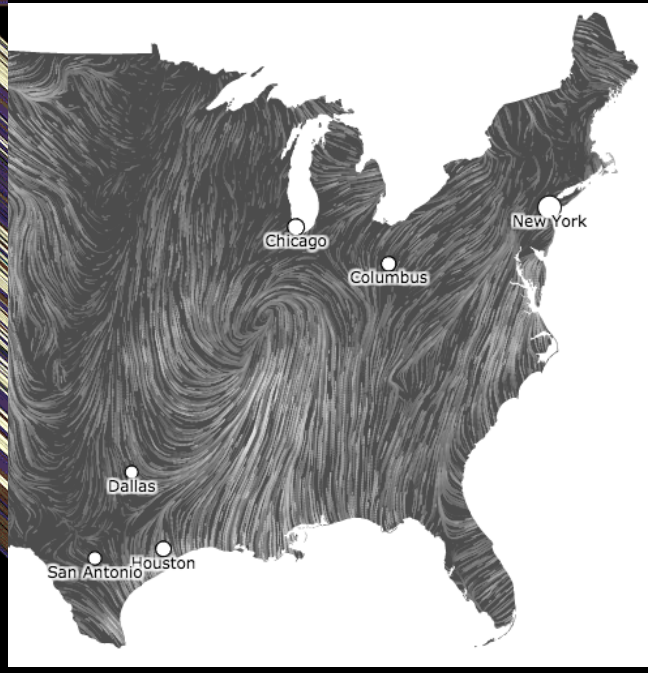
CSE 512 - Data Visualization

A3 Review & Critique







Leilani Battle University of Washington

Adjustment to Discussions & Quizzes

Not required this week! Quiz moved to next week.

Next week is the *last* required discussion+quiz.

Focus on your final projects after that!

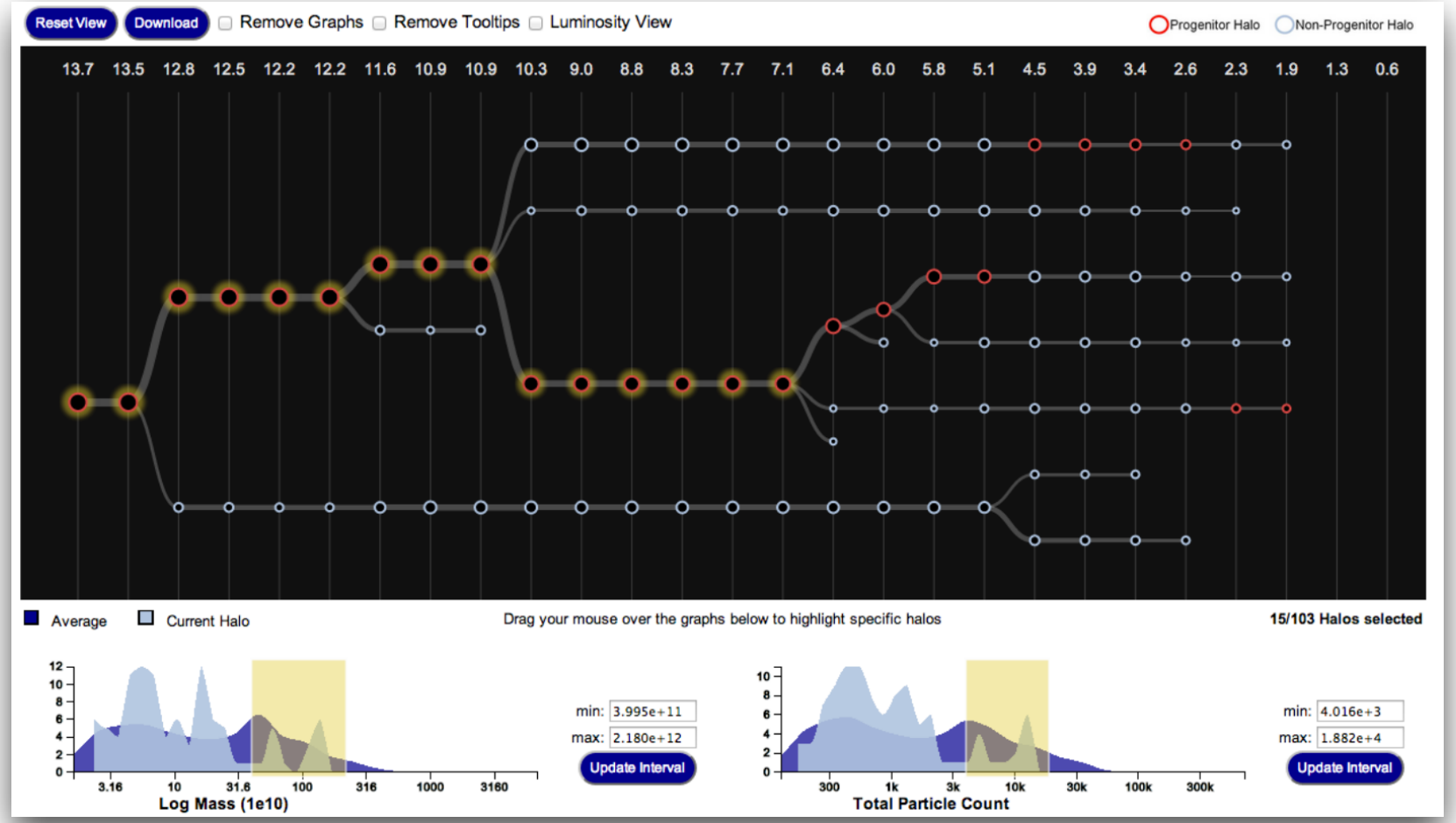
Final Project

Final Project

Create a visualization system, technique, or study.
Many options…
New system for a chosen domain + data set
Novel visualization / interaction technique

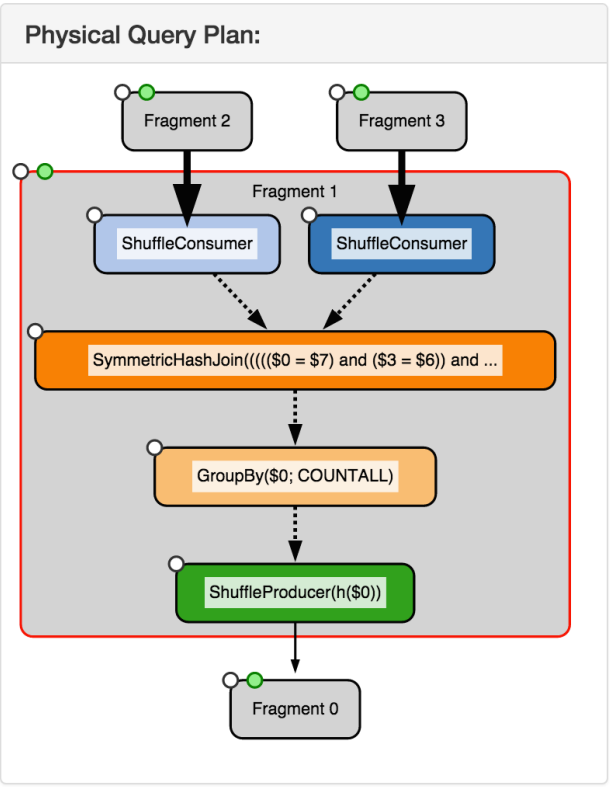
Design study or experiment
Deliverables
Share milestone progress
Project results (software, study results, etc.)
Poster presentation (max. 5 min)

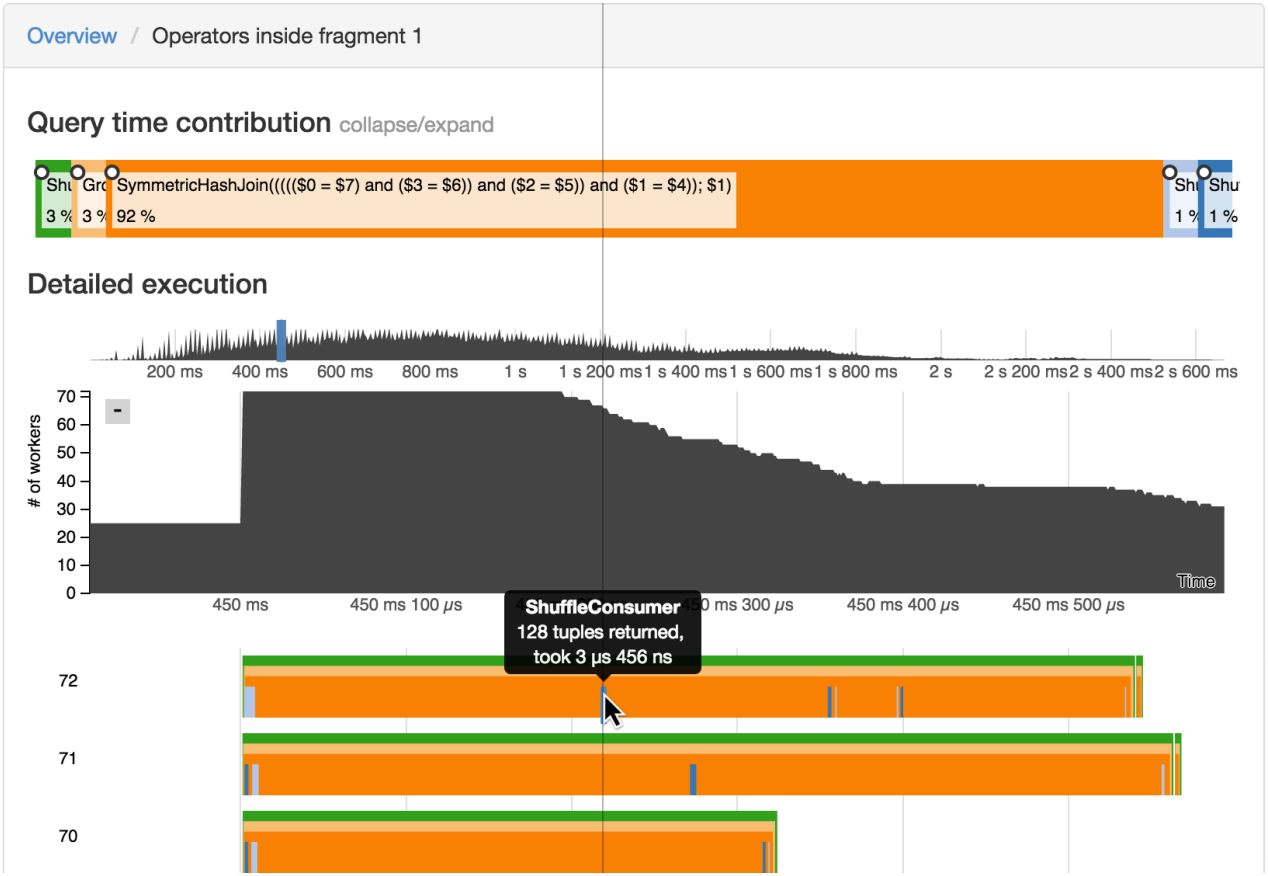
Visualizing Galaxy Merger Trees



S. Loebman, J. Ortiz, L. Orr, **M. Balazinska, T. Quinn et al.** [SIGMOD '14]

Perfopticon Distributed Query Performance





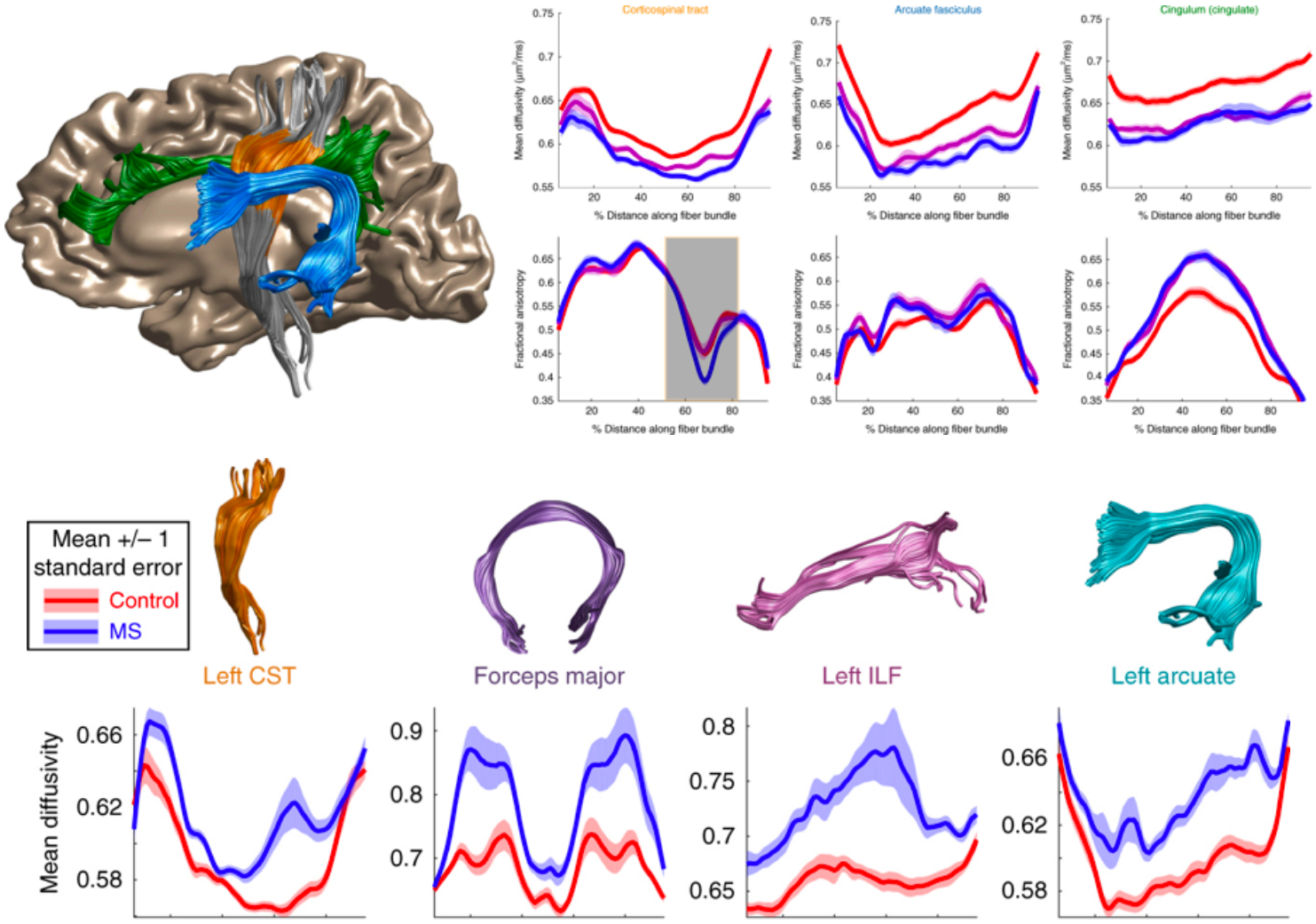
Dominik Moritz et al. [EuroVis '15]

nature COMMUNICATIONS

Article | OPEN | Published: 05 March 2018

A browser-based tool for visualization and analysis of diffusion MRI data

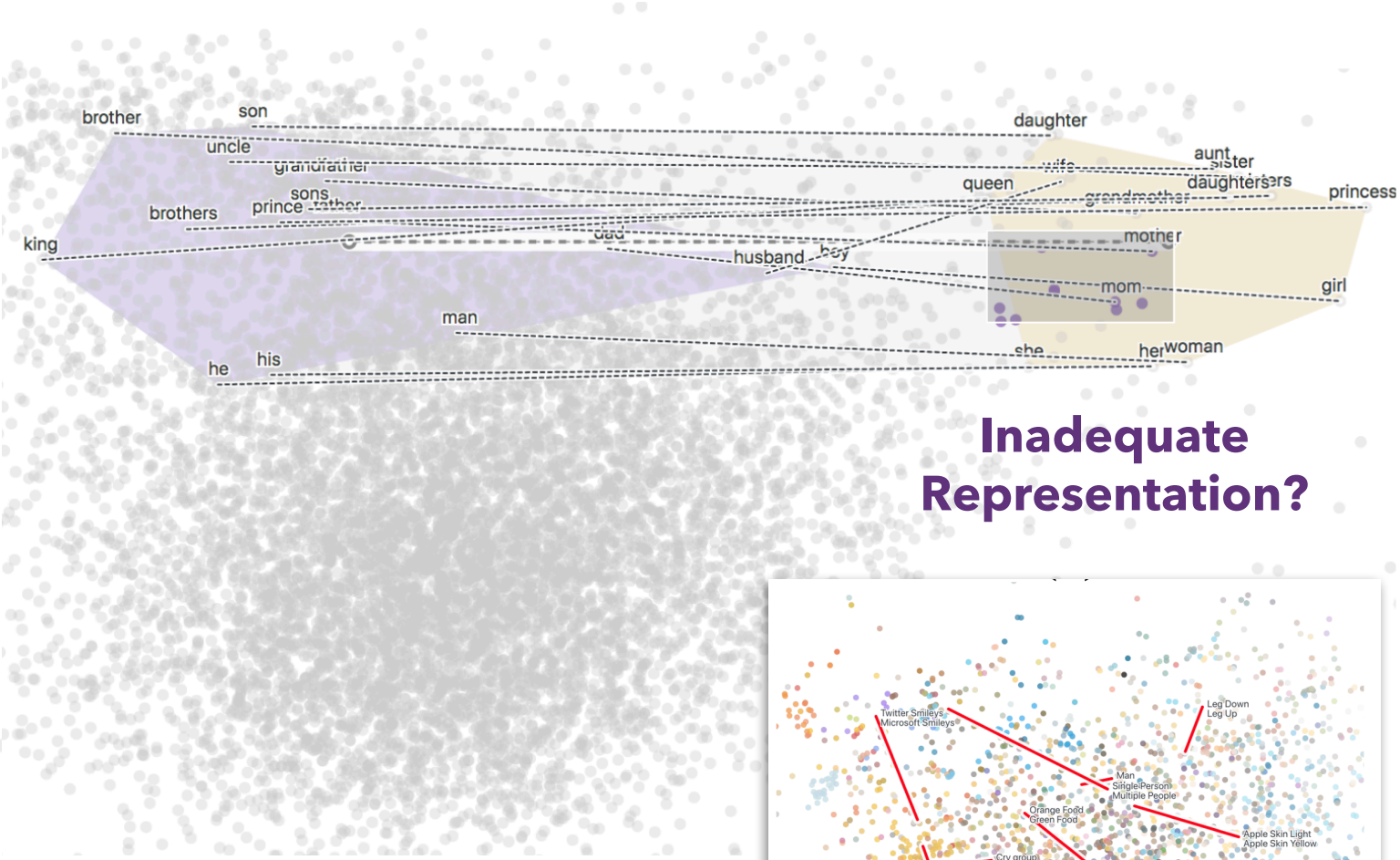
Jason D. Yeatman ✉, Adam Richie-Halford, Josh K. Smith, Anisha Keshavan & Ariel Rokem ✉



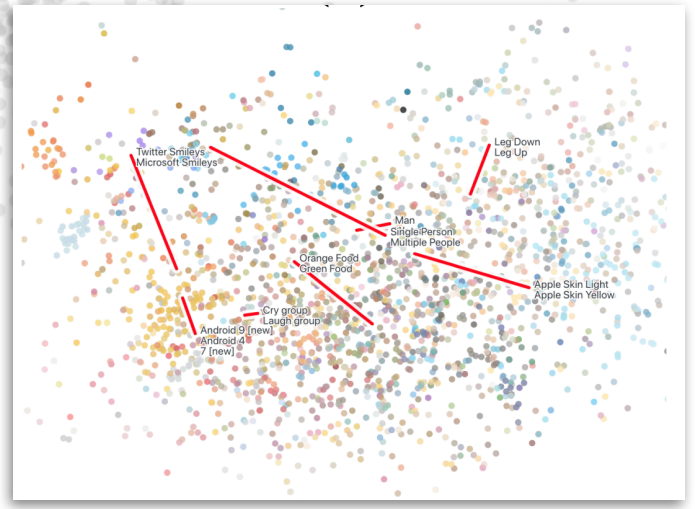
Brushed

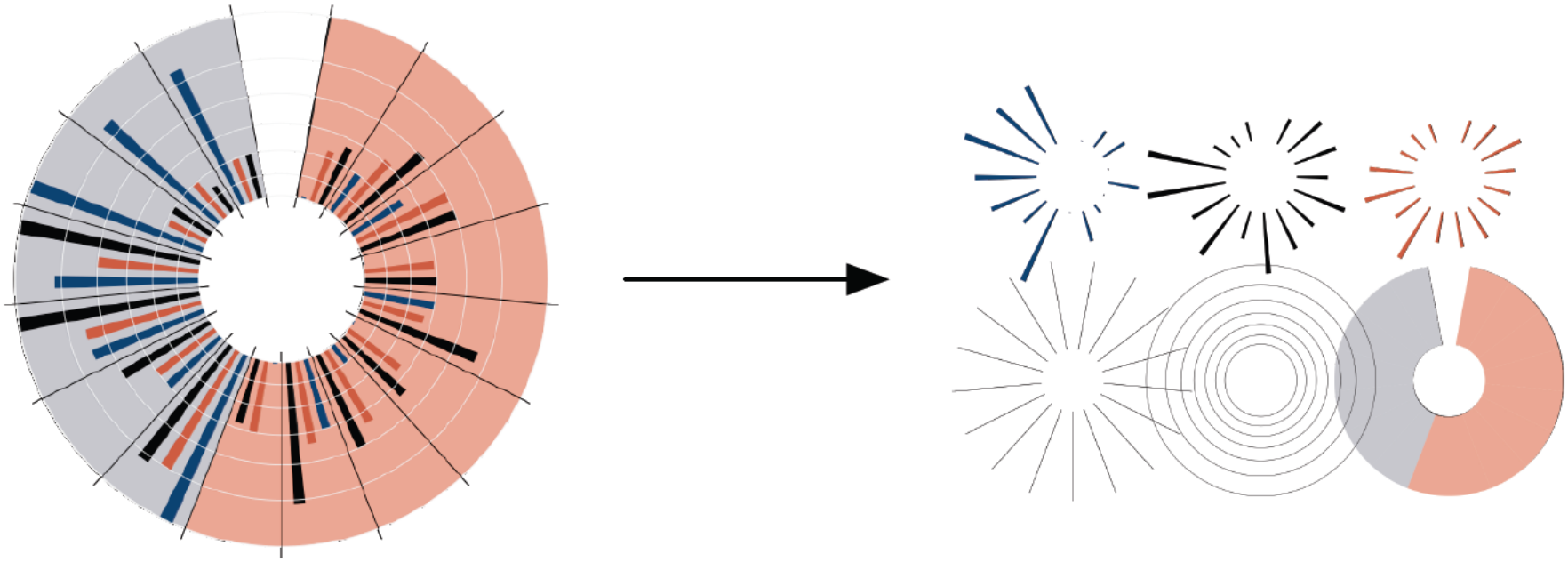
- mother +
- ms. +
- wedding +
- pink +
- mom +
- nurse +
- bedroom +
- ladies +
- householder +
- butterfly +

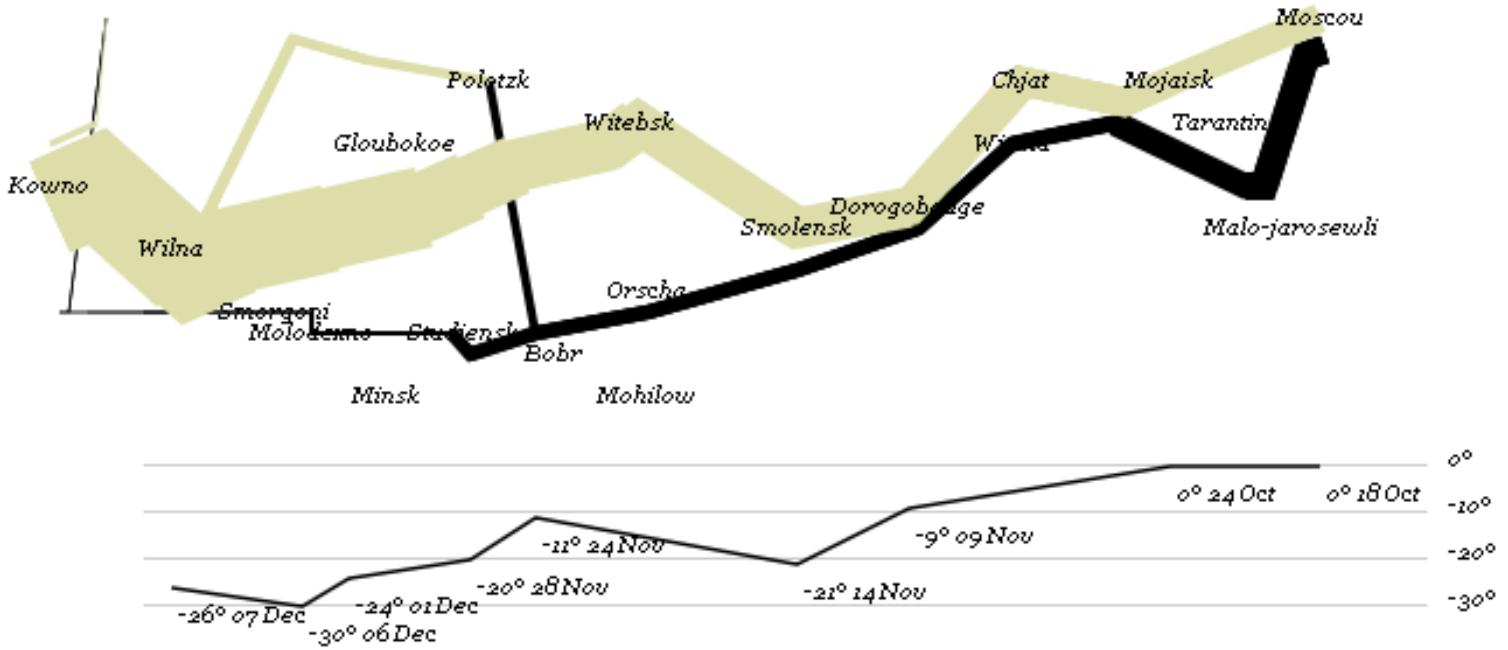
Bias?



Inadequate Representation?





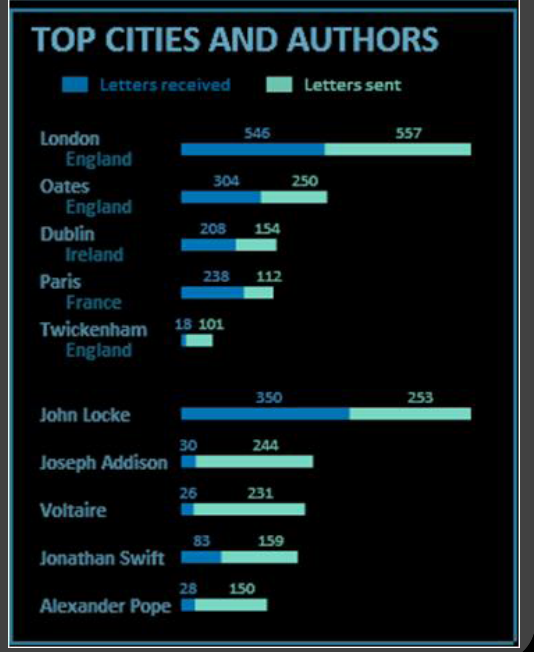



```
var army = pd.nest(napoleon.army, "dir", "group");
var vis = new pv.Panel();

var lines = vis.add(pv.Panel).data(army);
lines.add(pv.Line)
  .data(function() army[this.idx])
  .left(lon).top(lat).size(function(d) d.size/8000)
  .strokeStyle(function() color[army[paneIndex][0].dir]);

vis.add(pv.Label).data(napoleon.cities)
  .left(lon).top(lat)
  .text(function(d) d.city).font("italic 10px Georgia")
  .textAlign("center").textBaseline("middle");
```

```
vis.add(pv.Rule).data([0,-10,-20,-30])
   .top(function(d) 300 - 2*d - 0.5).left(200).right(150)
   .lineWidth(1).strokeStyle("#ccc")
   .anchor("right").add(pv.Label)
    .font("italic 10px Georgia")
    .text(function(d) d+"°").textBaseline("center");

vis.add(pv.Line).data(napoleon.temp)
   .left(lon).top(tmp) .strokeStyle("#0")
  .add(pv.Label)
   .top(function(d) 5 + tmp(d))
   .text(function(d) d.temp+"° "+d.date.substr(0,6))
   .textBaseline("top").font("italic 10px Georgia");
```

Visualizing the Republic of Letters

Daniel Chang, Yuankai Ge, Shiwei Song



Final Project Schedule

Proposal	Wed, May 18
Milestone	Fri, May 27
Poster	Wed, June 1
Deliverables	Tue, June 7

Logistics

Final project description posted online

Groups of up to 4 people

Select topics and form groups now!

Potential project ideas shared on edstem!

Possible Project Ideas

Advance your **existing research**.

Pick an **open problem** of interest.

Work in a domain with **real stakeholders**.

Tips for a Successful Project

Focus on a compelling **real-world problem**. How will you gauge success?

Consider **multiple design alternatives**. Prototype quickly (use Tableau, R, etc…).

Seek feedback (representative users, peers, …). Even informal usage can provide insights.

Choose **appropriate team roles**.

Start early (and read the suggested paper!)

Prototype Peer Critiques

Critique Questions

What is the purpose of the visualization?
Does it serve its purpose well?
Does it convey the data honestly?
Does it show the appropriate level of detail?
Are expressive & effective visual encodings used?
Do the interactions aid understanding of the data?
Is the design well-organized? Is it innovative?
What would like to change or refine?
How might things be done differently?

I Like… / I Wish… / What If?

I LIKE…
Praise for design ideas and/or well-executed implementation details. *Example: "I like the navigation through time via the slider; the patterns observed as one moves forward are compelling!"*

I WISH…
Constructive statements on how the design might be improved or further refined. *Example: "I wish moving the slider caused the visualization to update immediately, rather than the current lag."*

WHAT IF?
Suggest alternative design directions, or even wacky half-baked ideas. *Example: "What if we got rid of the slider and enabled direct manipulation navigation by dragging data points directly?"*

mlvl

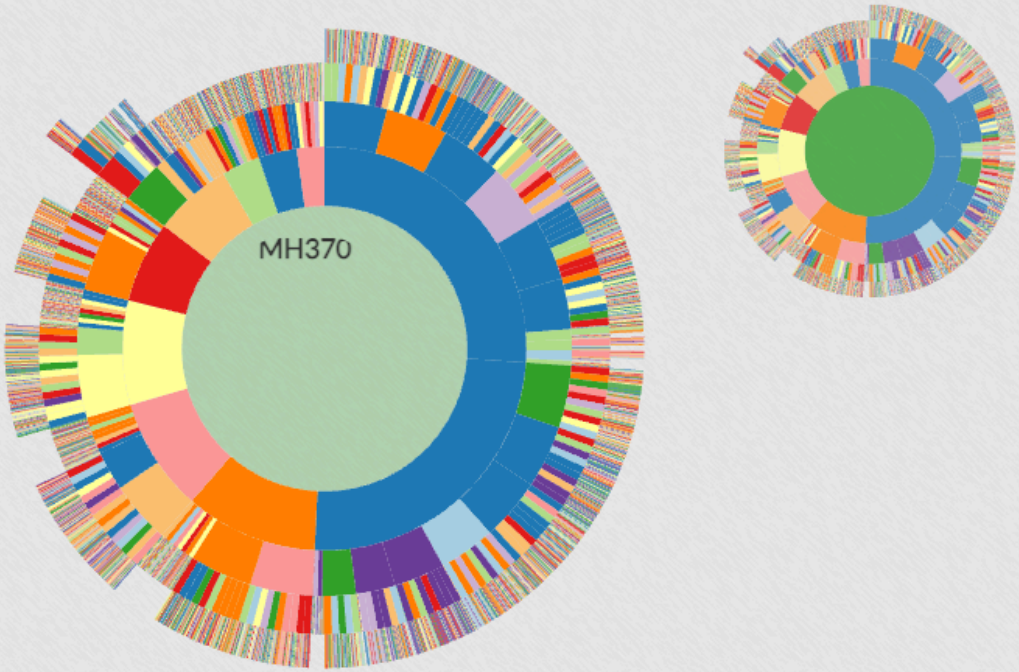
HIERARCHIE

A STRUCTURED DISPLAY OF TOPICS FROM DISCUSSION SURROUNDING THE MH-370 DISAPPEARANCE

?
About

Mouseover to explore, click to zoom in, click the center to zoom out.

MH370



DECISIVE ANALYTICS

View the source code on Github and follow us on Twitter

http://mlvl.github.io/Hierarchie/#/

I Like… / I Wish… / What If?

I LIKE…
Praise for design ideas and/or well-executed implementation details. *Example: "I like the navigation through time via the slider; the patterns observed as one moves forward are compelling!"*

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WHAT IF?
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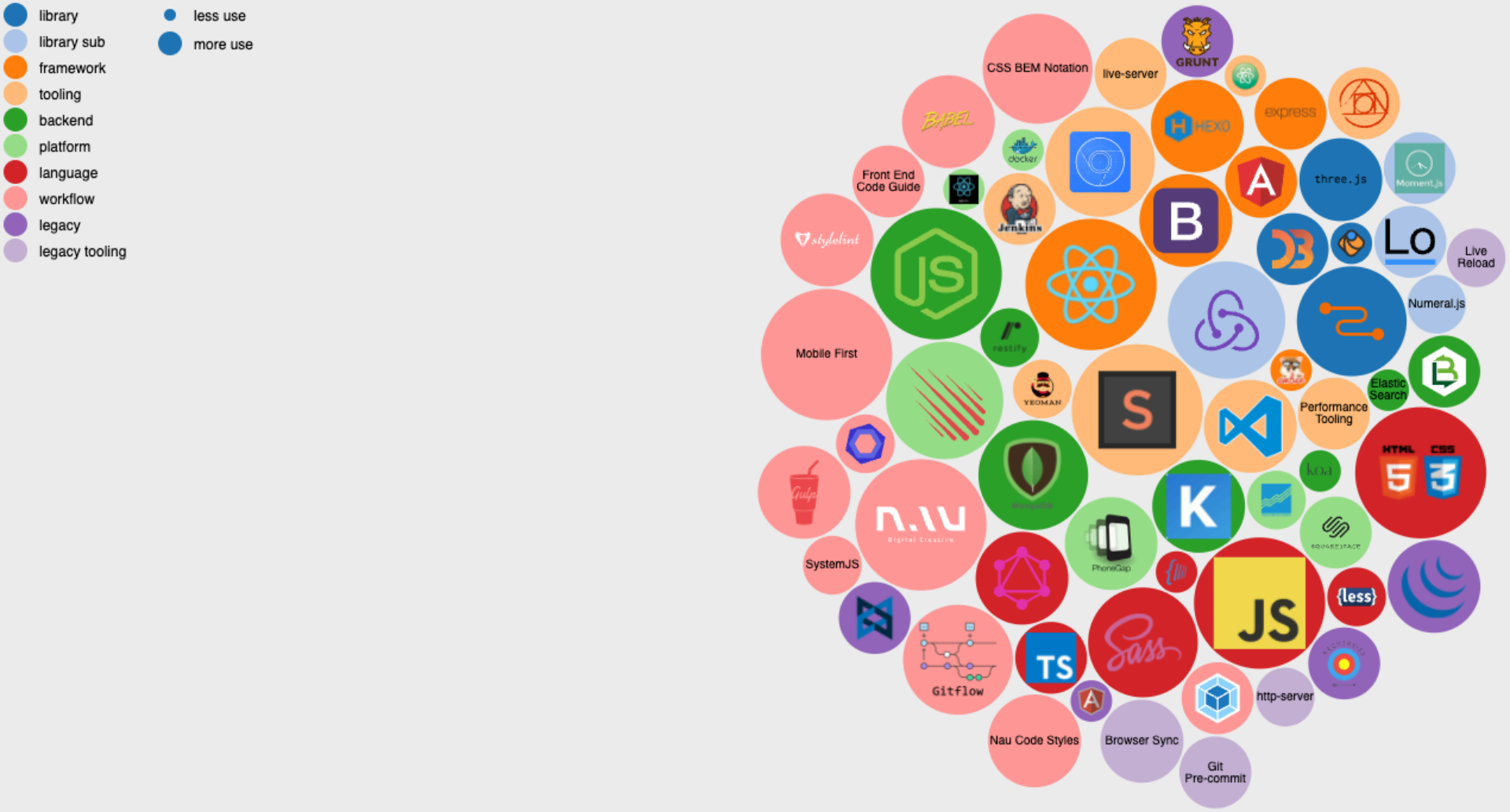
Nau Technologies Stack



https://trongthanh.github.io/techstack/

Critique Categories

Visualization Design

Choice of visual encodings (expressive, effective?)

Is the appropriate information visible by default?

Interaction Design

Choice of interaction techniques

Do they enhance understanding of the data?

Usability, discoverability, performance

Overall Design Quality

Organization, legibility, fitness for chosen goals

Reminders!

Final Project Proposal Due Wed 5/18, 11:59pm
https://courses.cs.washington.edu/courses/cse512/22sp/fp.html

Three Peer Evaluations Due Tue 5/17, 11:59pm
https://courses.cs.washington.edu/courses/cse512/22sp/a3-peereval.html