



Books and Ressources in Data Visualization

Christophe Bontemps
Toulouse School of Economics, INRA



@Xtophe_Bontemps

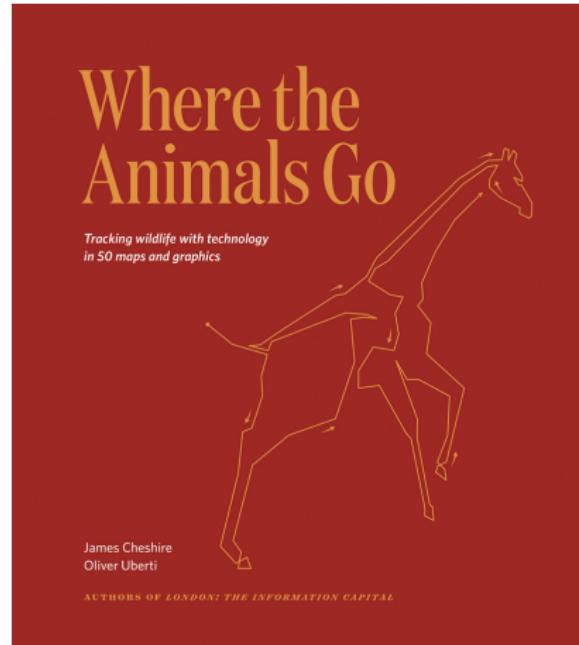


A LOT OF GREAT BOOKS !



WHERE THE ANIMALS GO

James Cheshire , Oliver Uberti



Particular Books, 22€

<http://wheretheanimalsgo.com/>

WHERE THE ANIMALS GO

James Cheshire , Oliver Uberti



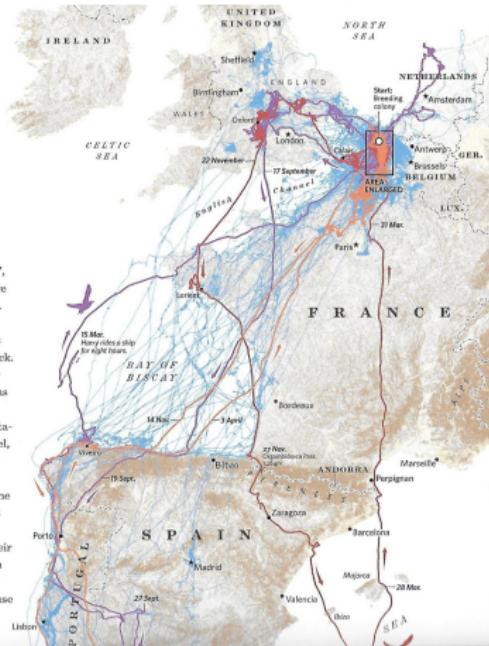
Gulls :

The Gulls Who Crave Crisps

WITH TITLES LIKE 'DATA SCIENTIST' and 'Open Data Publisher', the LifeWatch team at Belgium's Research Institute for Nature and Forest sounds more like a tech startup than a science lab. Don't be fooled. These coders are next-generation biologists. In three years, their system has gathered 2.5 million GPS fixes from 101 gulls, some of which migrate as far as Gambia and back.

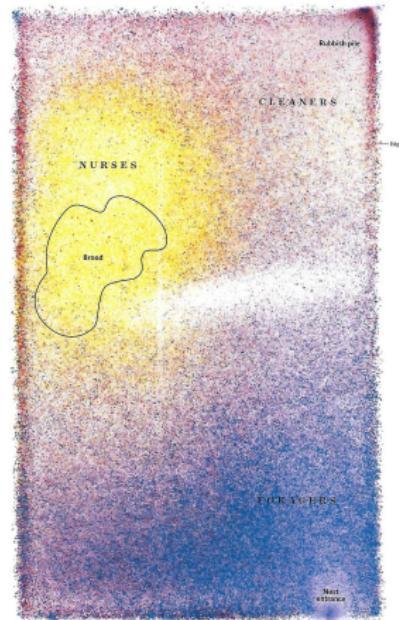
When tagged gulls return to the colony, they transmit their data to a base station. From there the last four days of locations feed into maps on the LifeWatch website while another program automatically cleans and stores the full journey on a database at the University of Antwerp. Those steps alone are novel, but what LifeWatch does next with the data is revolutionary: they share them.

Scientists often squirrel away their findings to keep someone else from publishing them before they can. LifeWatch doesn't think that way. In the spring of 2016, they lent their data to a hackathon in Helsinki, Finland. The organizers challenged their attendees to find and visualize patterns in the gulls' migration and foraging behaviour. For instance, do different gulls of the same species go to different places? Do they balance energy use with food availability? Consider this map our entry. To the first question, we invite you to compare the tracks of three



WHERE THE ANIMALS GO

James Cheshire , Oliver Uberti



Ants :

WHERE THE ANIMALS GO

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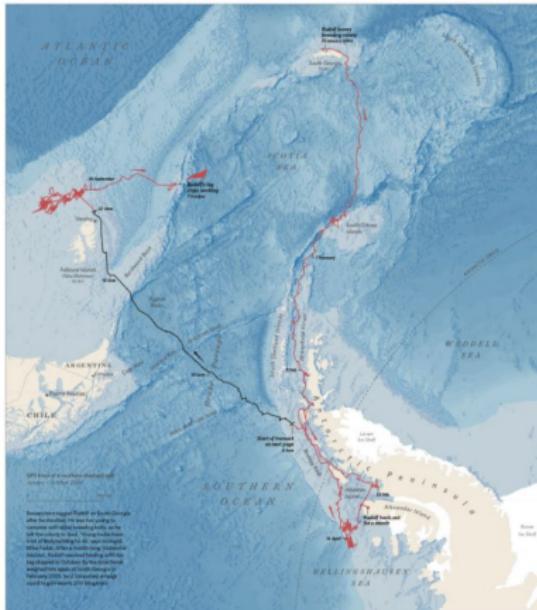
Vultures :

WHERE THE ANIMALS GO

James Cheshire , Oliver Uberti



Sseals :



The Seals Who Map the Southern Ocean

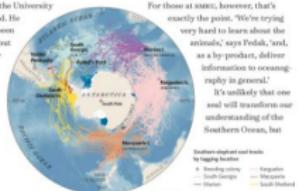
TO GET YOUR bearings in a new city, you might wander the streets, consult a guidebook or seek recommendations from locals. Olaf Pedak's approach is to try all three. When it comes to understanding our world's polar seas, oceanographic explorers find themselves in a similar boat: they have deployed sensing buoys to drift in the currents and used nautical charts to study specific areas. However, the one thing they have always lacked is local knowledge.

Step forward Mike Fedak of the Sea Mammal Research Unit at the University of St Andrews in Fife, Scotland. He and his colleagues have been conversing with seals about their neighbourhoods for years. They may not do much talking, but the sensors glued to their fur – which fall off when they molt every six months or so – give

us information about climate change and seal behaviour that we would never have discovered otherwise. And that's important. Olaf Pedak and his team at the Alfred Wegener Institute in Potsdam, Germany, were able to collect sea temperature data under the ice along the Antarctic Peninsula, areas oceanographers would find it hard to reach.

Lars Boehme, an oceanographer at SMRU, recalls unease from other researchers in the early days of "animal-directed sampling". They said seals aren't as "impartial" as scientists. They'll only visit parts of the ocean that are important to them.

For those who are still skeptical, here's another, exactly the point. "We're trying very hard to learn about the animals," says Pedak, "and, as a by-product, deliver information to oceanography in general." It's unlikely that seal research will transform our understanding of the Southern Ocean, but



that's not the point. "We're trying very hard to learn about the animals," says Pedak, "and, as a by-product, deliver information to oceanography in general."

It's unlikely that seal research will transform our understanding of the Southern Ocean, but

THE WALL STREET JOURNAL GUIDE TO INFORMATION GRAPHICS : THE DOS AND DON'TS OF PRESENTING DATA, FACTS, AND FIGURES

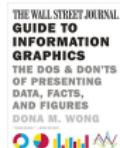
Dona M. Wong



W. W. Norton & Company, 16€
<http://donawong.com/>

THE WALL STREET JOURNAL GUIDE TO INFORMATION GRAPHICS :

Dona M. Wong



Chapter 1 BASICS

Don't Don't use highly stylized or turn the type sideways to save space.

Headline of the chart
A brief description that outlines what the data shows

Do Serif and sans-serif fonts can complement each other and add variety, and are still highly legible.

Headline of the chart
A brief description that outlines what the data shows

Don't Don't knock white type out of black or color. Legibility is compromised.

Do Use bold to increase legibility on a shaded background or to emphasize a segment.

Don't Don't set a huge amount of text in bold. Emphasizing everything means nothing gets emphasized.

Name	Data	Data	Data
Company A	0.0	0.0	0.0
Company B	0.0	0.0	0.0
Company C	0.0	0.0	0.0
Company D	0.0	0.0	0.0

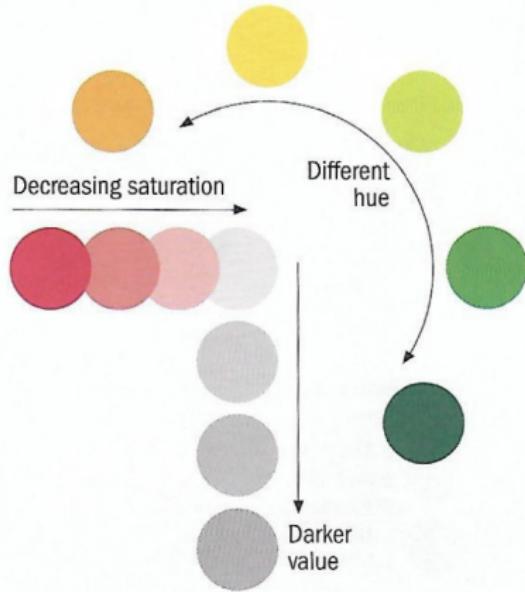
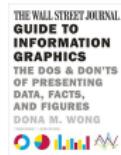
Do Use bold type to emphasize the focal point of the message. Be judicious.

Name	Data	Data	Data
Company A	0.0	0.0	0.0
Company B	0.0	0.0	0.0
Company C	0.0	0.0	0.0
Company D	0.0	0.0	0.0

Do, don't:

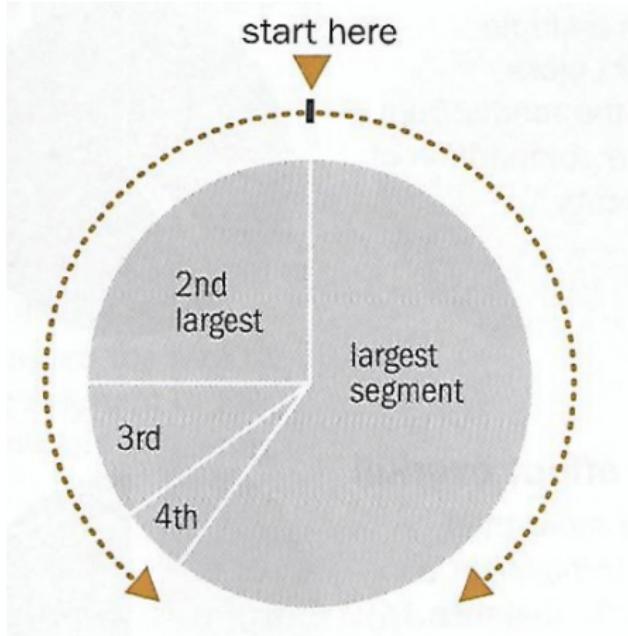
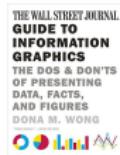
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Color :

THE WALL STREET JOURNAL GUIDE TO INFORMATION GRAPHICS : *Dona M. Wong*

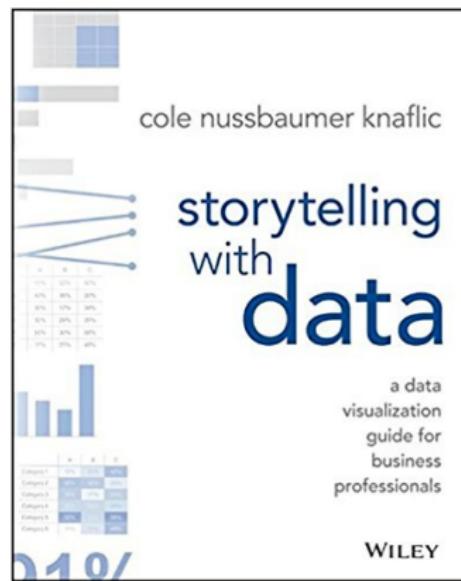


Pie

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Cole Nussbaumer Knafllic



John Wiley & Sons, 25€

<http://www.storytellingwithdata.com/>

STORYTELLING WITH DATA

Cole Nussbaumer Knaflic



Examples :

91%

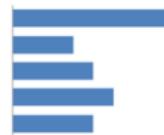
Simple text



Scatterplot



Vertical bar



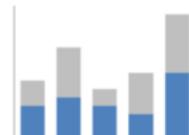
Horizontal bar

	A	B	C
Category 1	15%	22%	42%
Category 2	40%	36%	20%
Category 3	35%	17%	34%
Category 4	30%	29%	26%
Category 5	55%	30%	58%
Category 6	11%	25%	49%

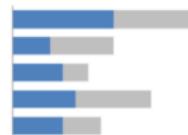
Table



Line



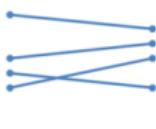
Stacked vertical bar



Stacked horizontal bar

	A	B	C
Category 1	15%	22%	42%
Category 2	40%	36%	20%
Category 3	35%	17%	34%
Category 4	30%	29%	26%
Category 5	55%	30%	58%
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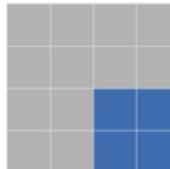
Heatmap



Slopegraph



Waterfall



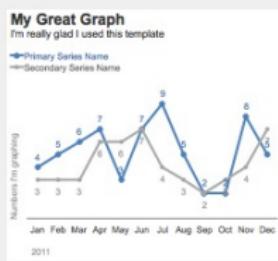
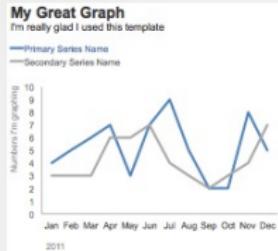
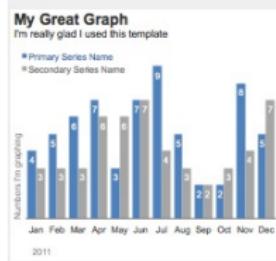
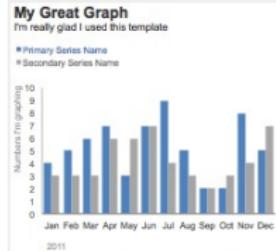
Square area

STORYTELLING WITH DATA

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Examples :



STORYTELLING WITH DATA

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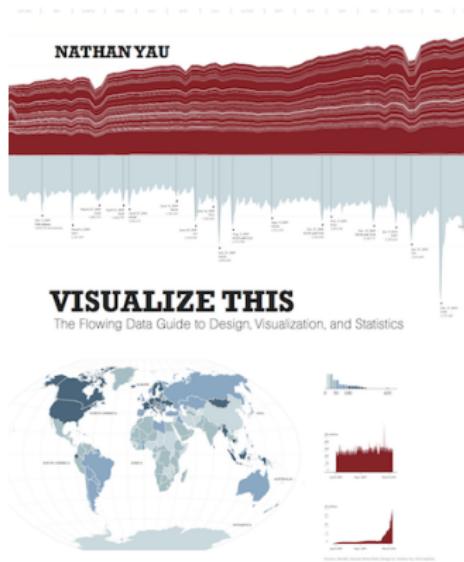
Examples :

Budget over time by category



VISUALIZE THIS : THE FLOWINGDATA GUIDE TO DESIGN, VISUALIZATION AND STATISTICS

Nathan Yau



Wiley India, 22€
<http://flowingdata.com/>

VISUALIZE THIS :

Nathan Yau



Fresh Originals / Rotten Finales

Out of the 35 selected trilogies, 23 of them had *fresh* originals; however, only 11 trilogies had a *fresh* finale.

■ Fresh (at least 60%)
■ Rotten

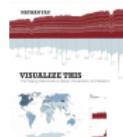


Source: Rotten Tomatoes, Wikipedia | By: FlowingData, <http://flowingdata.com>

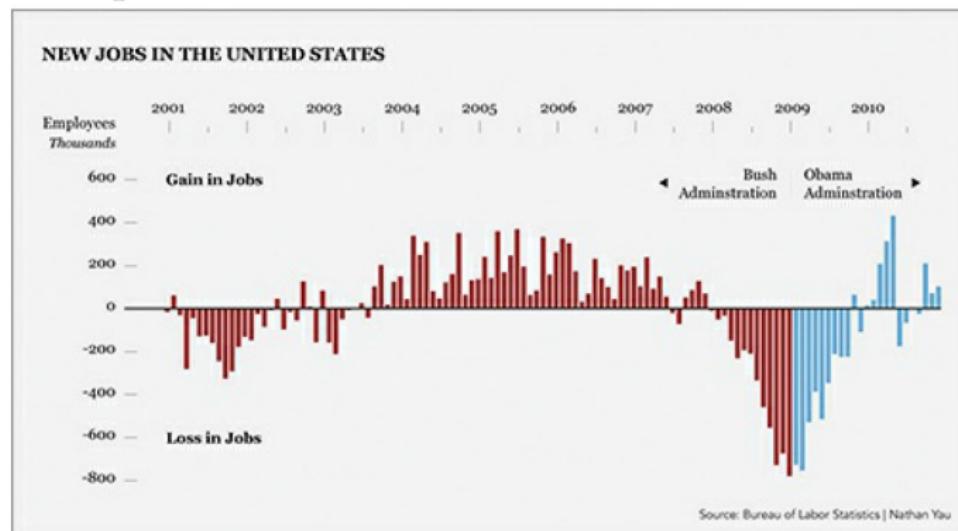
Examples :

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Nathan Yau



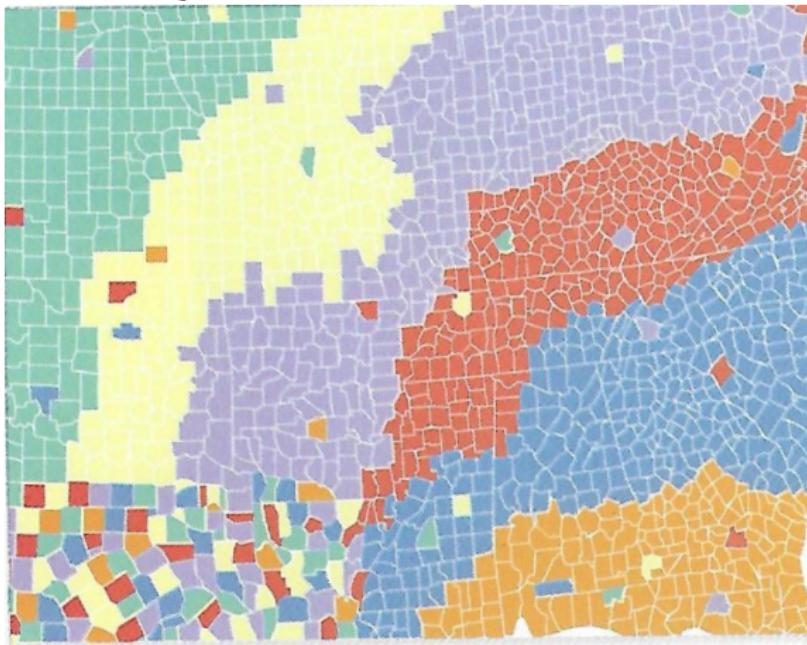
Examples :



VISUALIZE THIS : *Nathan Yau*



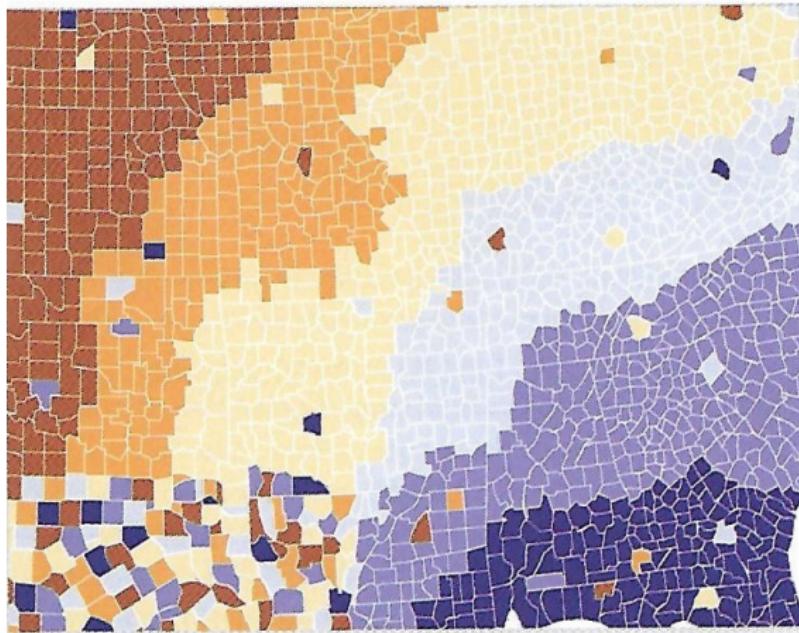
Colors : Quantitative



VISUALIZE THIS : *Nathan Yau*



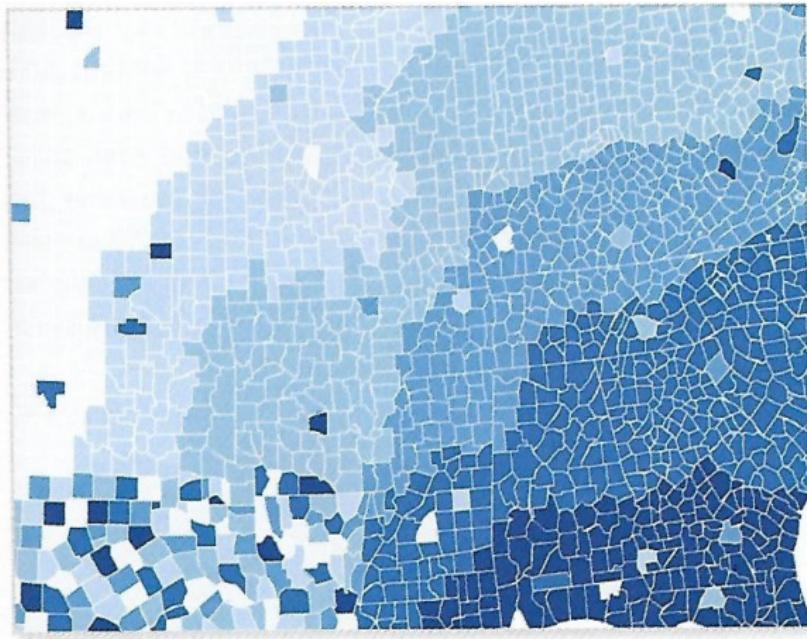
Colors : Diverging



VISUALIZE THIS : *Nathan Yau*

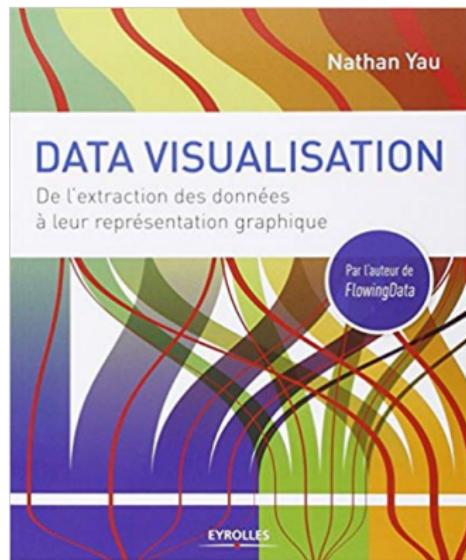


Colors : Sequential



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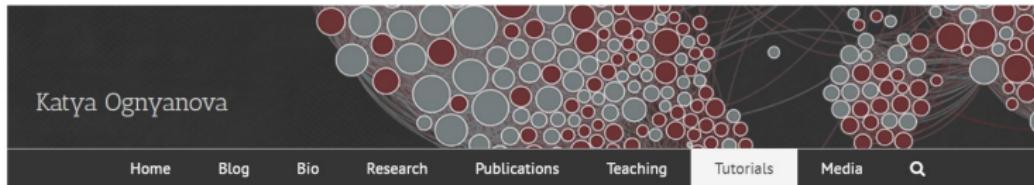
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Network Science Tutorials

This page contains information about the most recent versions of several network tutorials that I have developed and frequently update. The tutorials come from workshops and invited talks I give for students, colleagues, and computationally curious bystanders. You can also find some of these materials (and other interesting bits and pieces) on my GitHub page.

If you find the materials on this site to be useful, please cite them in your work. This helps me (and the computational research community) to make the case that the open publishing of digital materials, data, and code is a meaningful academic contribution.

If you want to invite me to give a talk or a workshop at your institution, email workshop@ognyanova.net.



Katherine Ognyanova



Asst. Prof. Rutgers SC&I
Postdoc at the Lazer Lab:
Northeastern & Harvard.
PhD in Communication:
USC Annenberg School.

Lots of resources (data+ code), tutorials, slides...

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Tamara Munzner

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WEBSITE : STEPHEN FEW

 perceptual edge

Visual Business Intelligence
for enlightening analysis and communication

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Simplicity, simplicity, simplicity.
Henry David Thoreau

Simplicity is the ultimate sophistication.
Anonymous

Seek simplicity and distrust it.
Alfred North Whitehead

Perceptual Edge

We are overwhelmed by information, not because there is too much, but because we haven't learned how to tame it. Information lies stagnant in rapidly expanding pools as our ability to collect and warehouse it increases, but our ability to make sense of and communicate it remains inert, largely without notice.

Computers speed the process of information handling, but they don't tell us what the information means or how to communicate its meaning to decision makers. These skills are not intuitive; they rely largely on analysis and presentation skills that must be learned.

Perceptual Edge is an archive of the work of Stephen Few from 2003 through 2017 to help people make sense of and communicate data more effectively by representing it visually.

Many insights, before/after

<http://www.perceptualedge.com/examples.php>

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My website : Data.visualisation.free.fr

Data Visualisation: Principles in Action

Christophe Bontemps,

Events

Visual Storytelling - October 2017

Visual Poster Prize - April 2017

Visual Data Visualization - February 2017

EDINA Big Data Master - December 2016

Media City Visualisation - March 2016

EDINA Big Data Master - Feb. 2016

TDS Workshop - March 2016

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Reconnaissance Ingrédient - May 2014

Reconnaissance Ingrédient - November 2013

Nice visualizz.



Everybody's got to cheat sometimes...

(October 2017)

Everybody's got to cheat sometimes... I am not the first person here who is talking about the values of cheating with data. 'Bad Cheating' (well, he is no thief, nor really 'cheating' as you will see...) The line chart shows that even experienced data visualisation have committed using some of the techniques described in this post. I am not the first person here who is talking about the values of cheating with data. A video has been recorded during a meeting at the [DataCamp](#) seminar. You can enjoy my talk (about 1h) in French by clicking on the image, or simply enjoy the video on [Engagé](#).

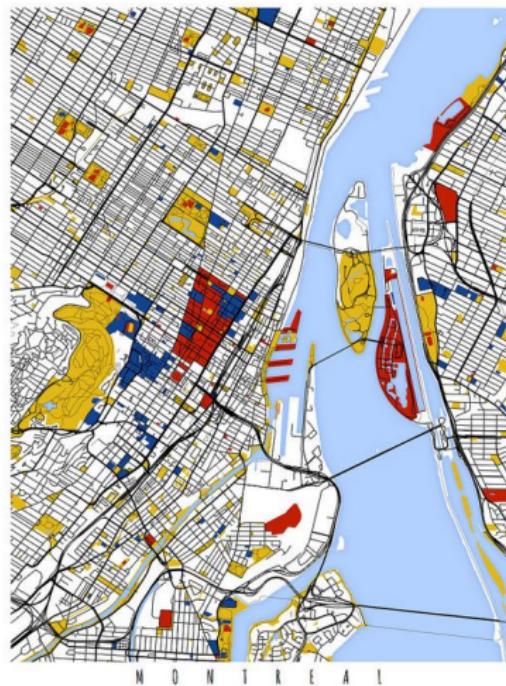


@Xtophe_Bontemps

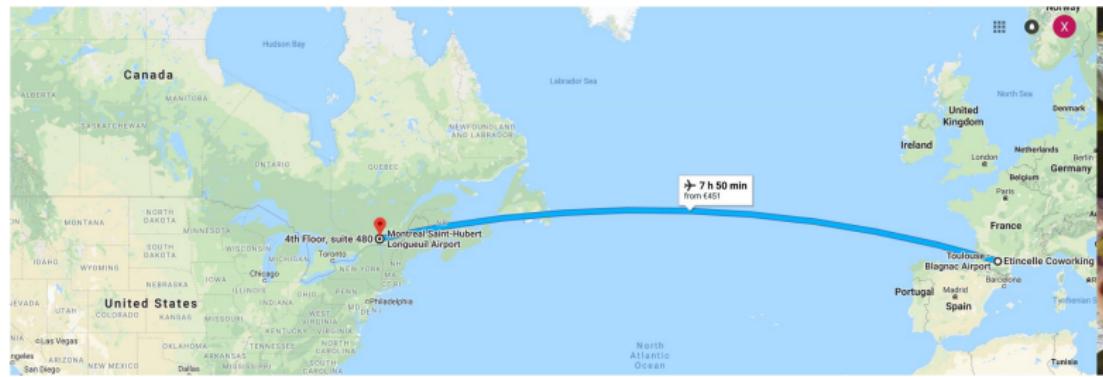
SPECIAL ANNOUNCEMENT !

Aurore nous quitte pour aller là-bas :

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SPECIAL ANNOUNCEMENT !



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Statistiques de participation pour Archimbaud Aurore

A répondu oui

11 fois

Présence aux Meetups

10 jusqu'à aujourd'hui

Dernière visite

ces derniers jours

Absences

0 absence(s)

SPECIAL ANNOUNCEMENT !

Bonne route ! (snif, snif !)



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Infographie du Mooc

Christophe Bontemps (éditions MédiaTIC)

Présentation de l'édition 2016

Présentation de l'édition 2017

Temps d'analyse, vision et test

Évaluation des exercices

Gestion collectif des exercices

Impression data visualisation

Documentations (PDF)



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