Visual Analytics Introduction

S. Rinzivillo

M. Tesconi

Who We Are?

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Who You Are?

- Online questionnaire at
  - http://goo.gl/O79wqK

Goals

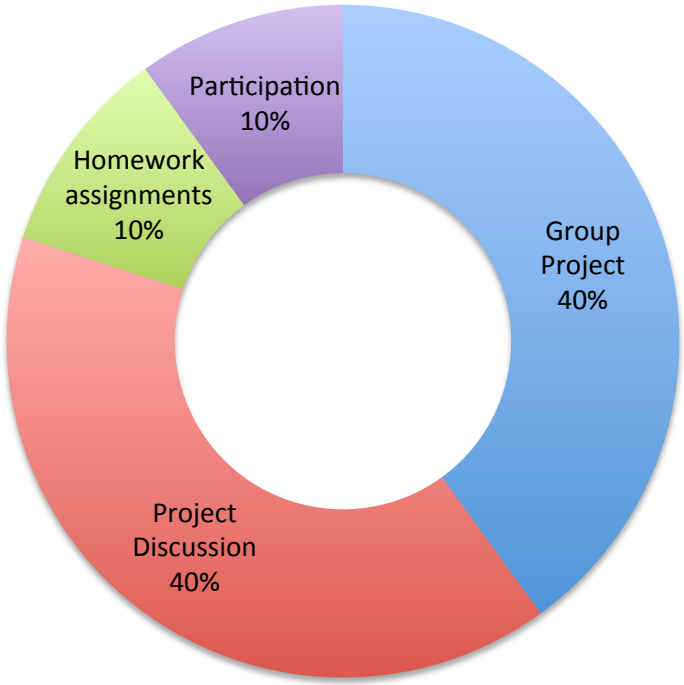
- Learn to combine analytical techniques with effective visualization
- Gain practical know-how on visualization methods
- Produce interactive, informative, effective, insightful (and beautiful) visualizations

Schedule

- On Monday
  - 14:00 to 16:00
  - Room: L1
  - Teacher: Salvatore Rinzivillo
- On Tuesday
  - 16:00 to 18:00
  - Room: L1
  - Teacher: Maurizio Tesconi

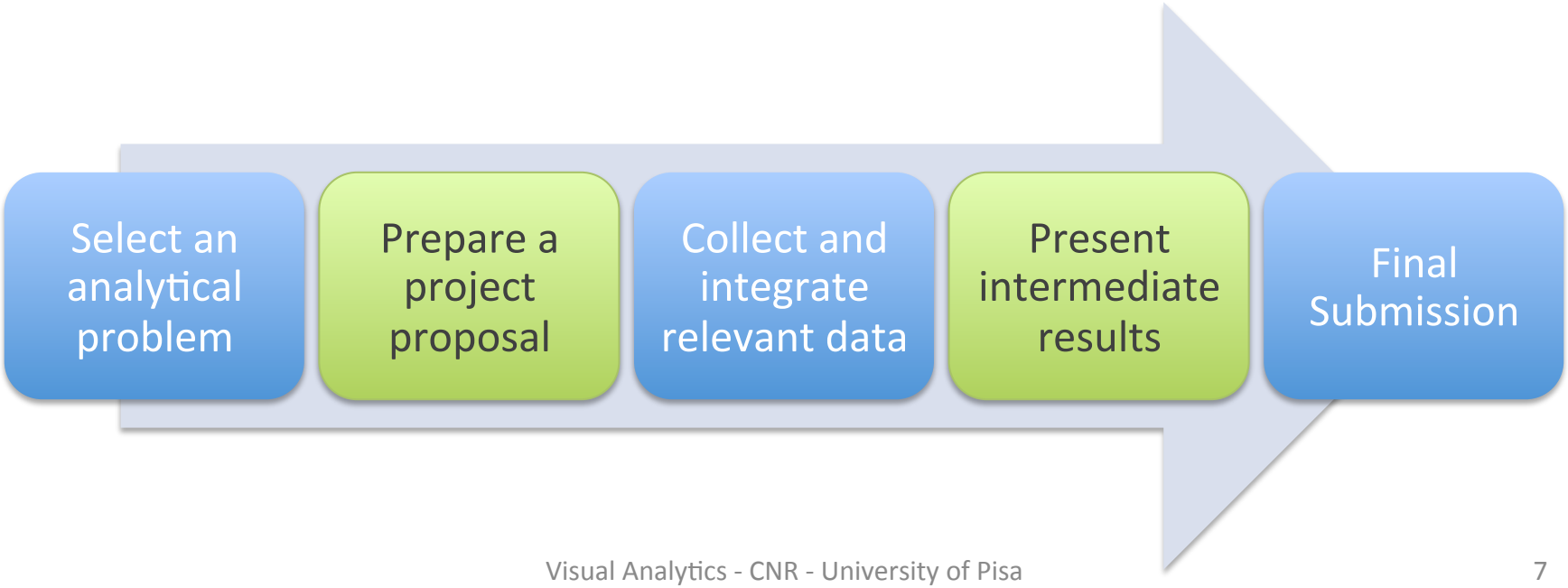
Grading

- Homework assignments (10%)
  - *In itinere* tasks and small projects
- Group Projects (40%)
  - Up to 2 persons per group
- Project discussion (40%)
- Participation (10%)

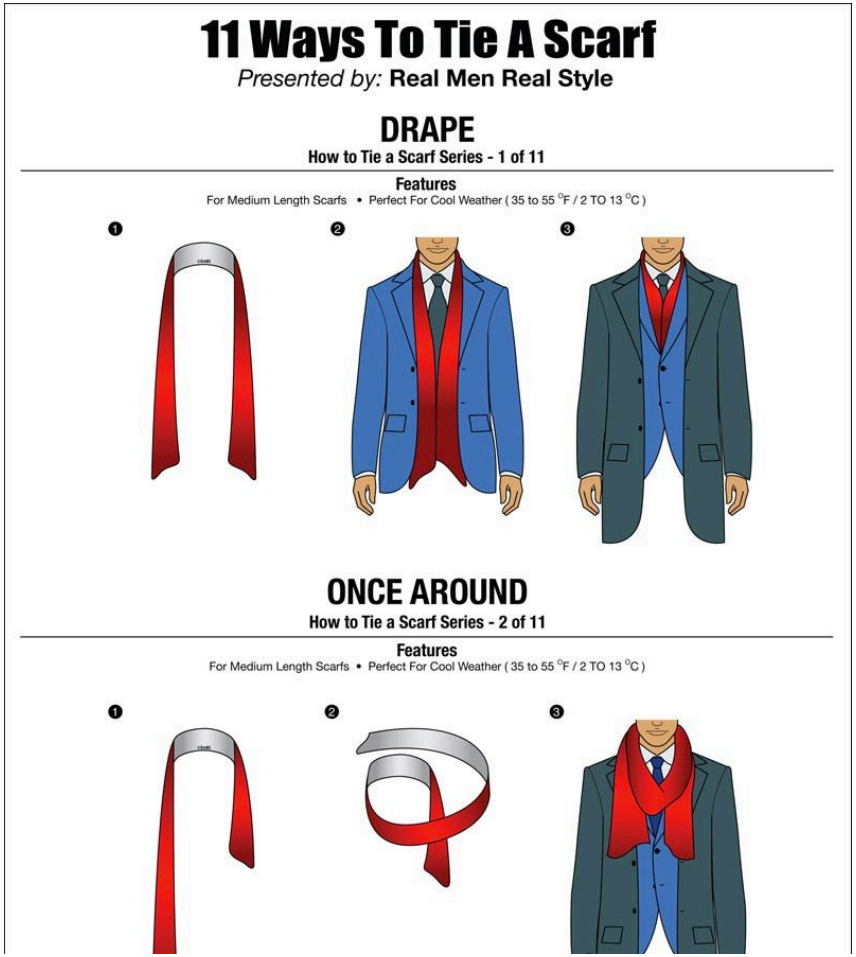


Grading Projects

- Up to 2 persons per group
- Objective: select and present a visual interface for an analytical problem

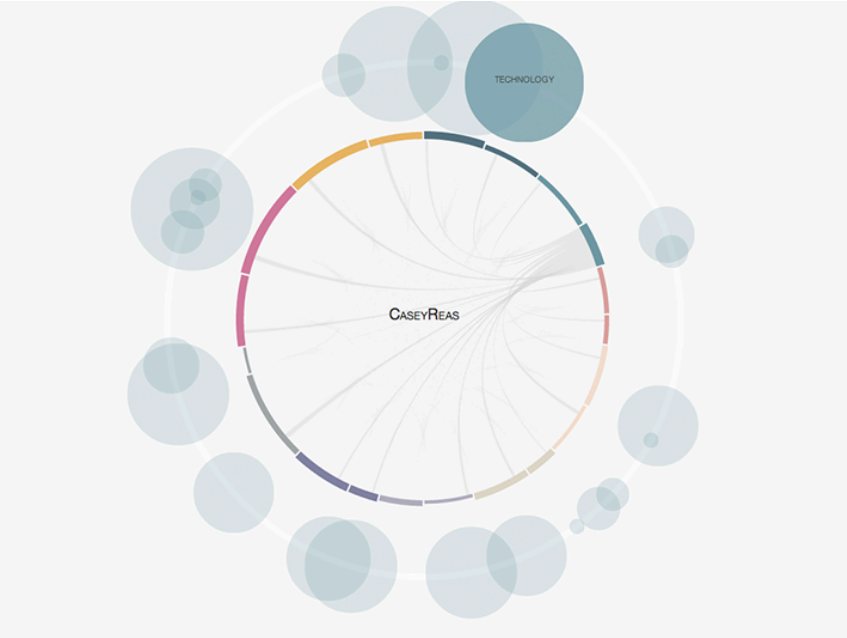


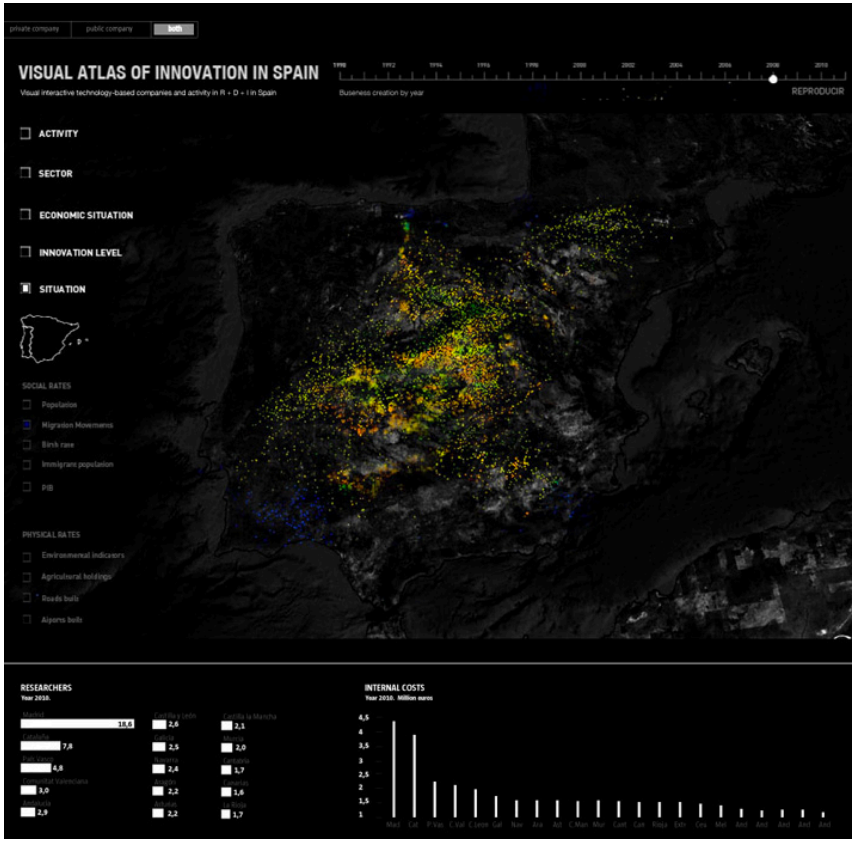
Not valid projects



Visual appealing compositions. Not linked to data nor to an analytical process

Valid proposals

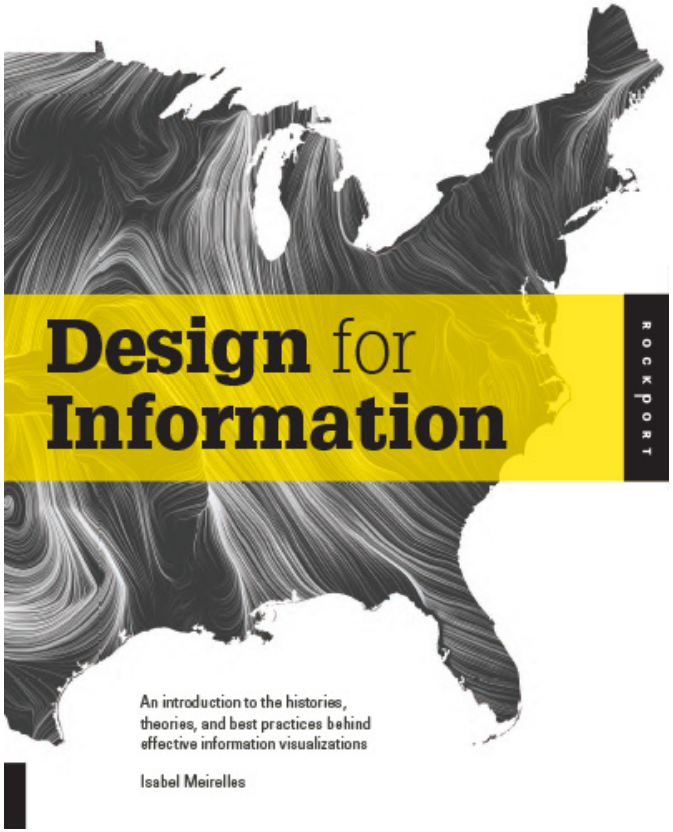




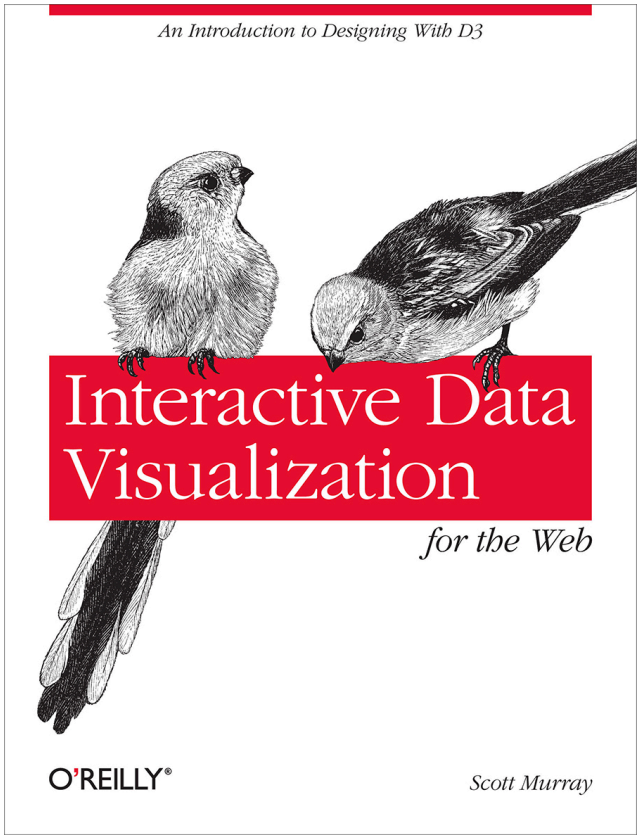
http://lab.interactivethings.com/substratum-visualization/application.html http://www.atlasvisualdeinnovacion.com/

Textbooks

Design for Information
Isabel Meirelles

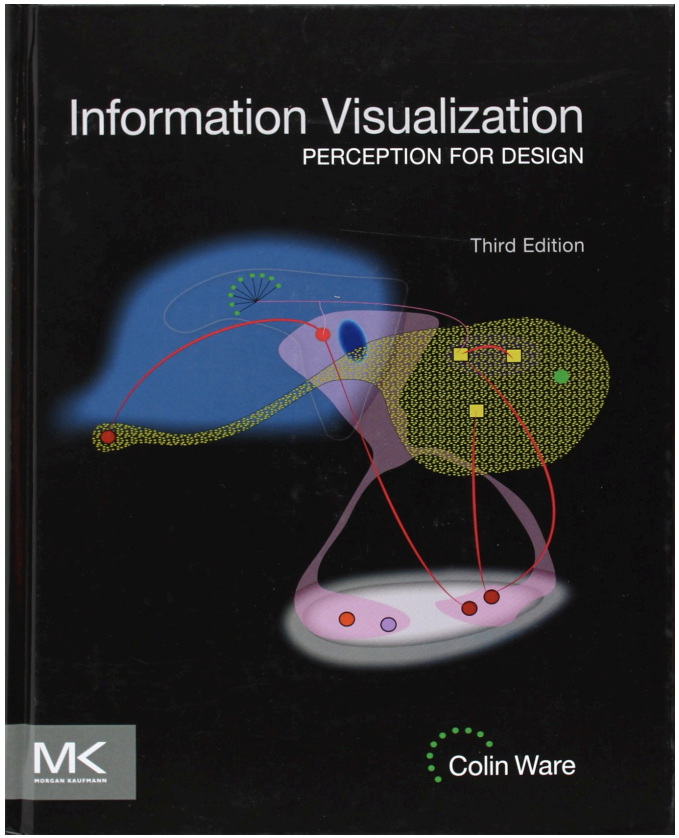


Interactive Data Visualization
Scott Murray

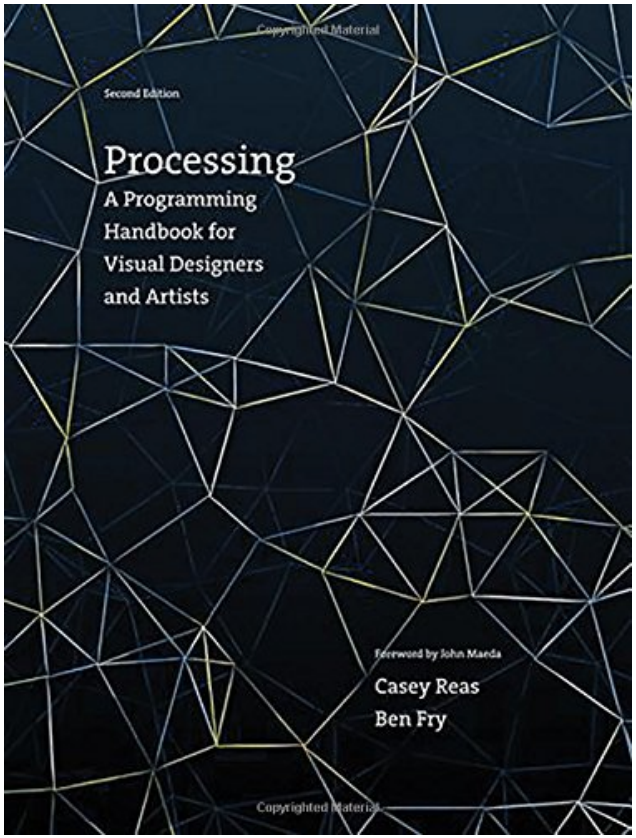


Textbooks

Information Visualization
Colin Ware



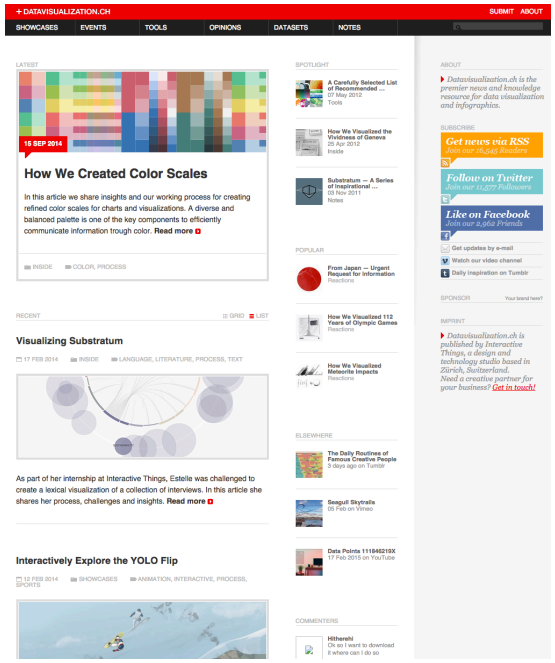
Processing: Handbook for Visual Designers and Artists
Casey Reas, Ben Fry



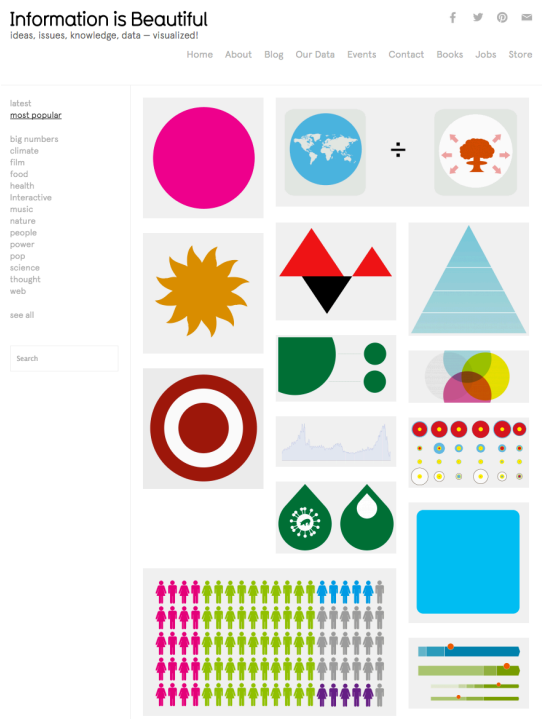
Other Resources

Observe how others resolved design problems

datavisualization.ch



informationisbeautiful.net



infosthetics.com

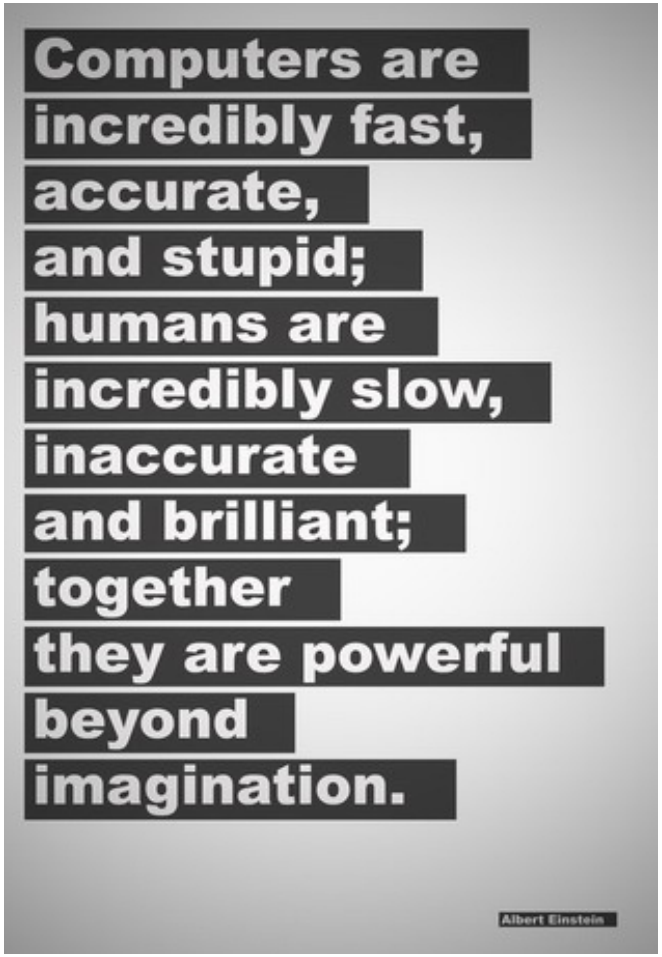
VISUAL ANALYTICS

Motivations

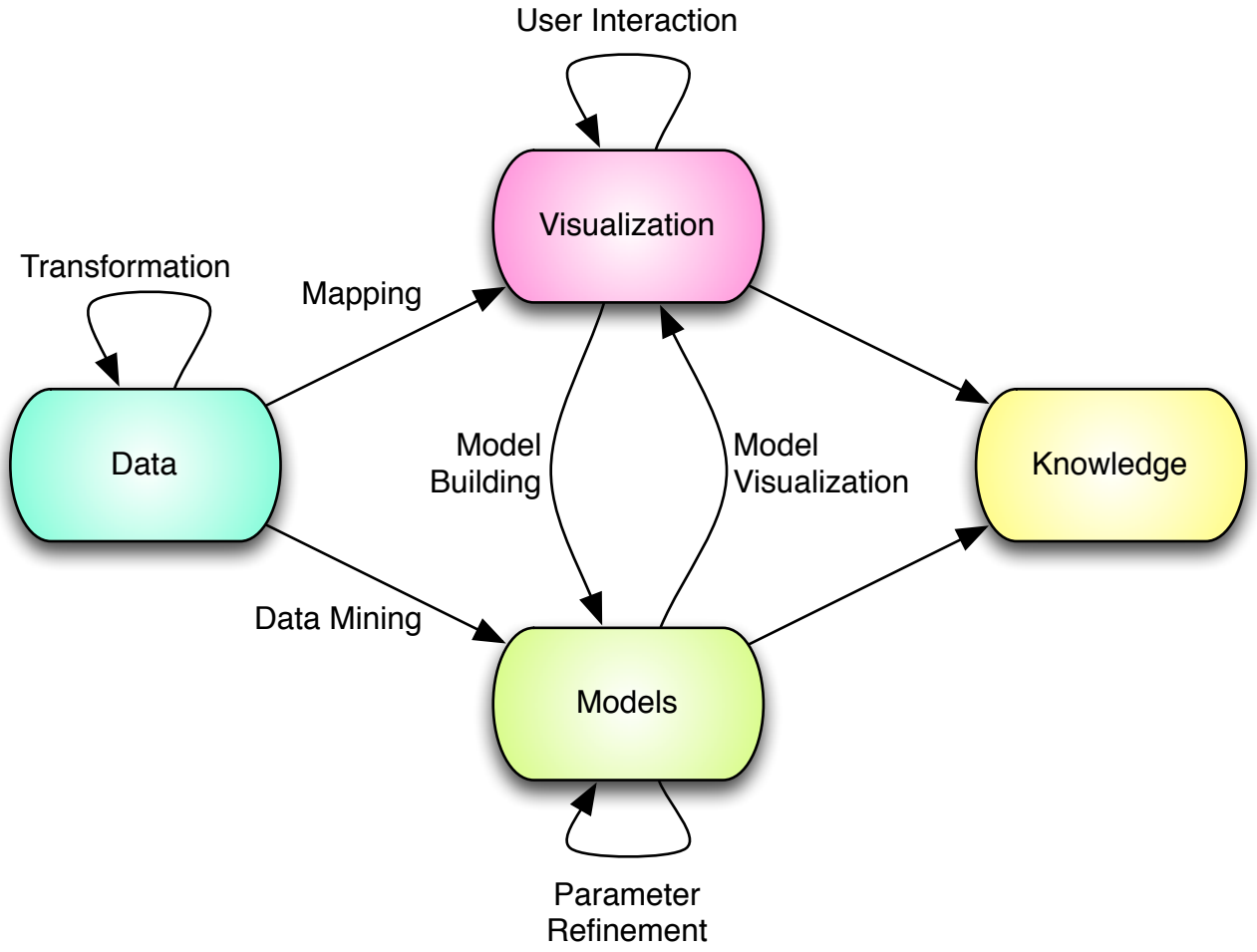
- Data everywhere
- No value for raw data
  - Need to extract valuable information
- Information overload:
  - Irrelevant for current task
  - Processed in an inappropriate way
  - Presented in an inappropriate way

Visual Analytics Aim

- Make data and information processing transparent
- Combine strengths of humans and computers



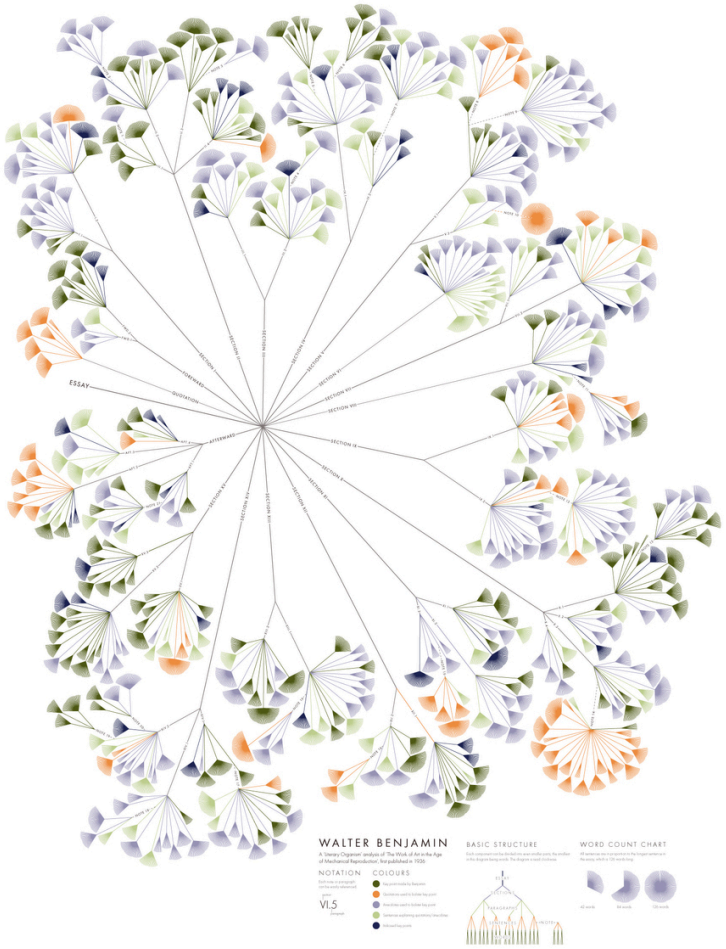
Visual Analytical Process

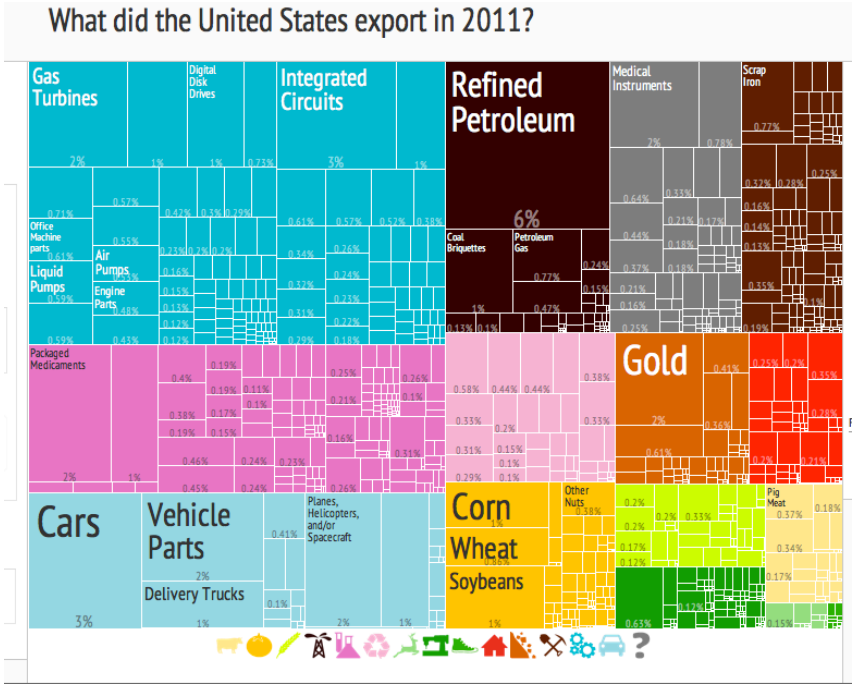


Adapted from:
Mastering the Information Age
Keim, Kohlhammer, Ellis, Mansmann

COURSE OUTLINE

Hierachical Structures

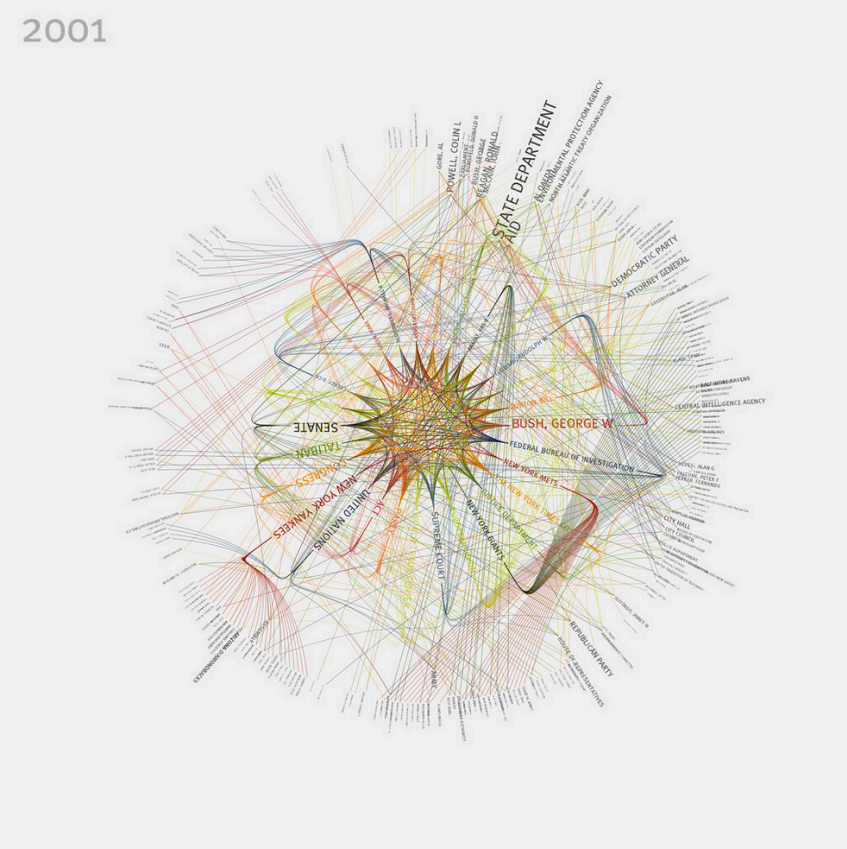


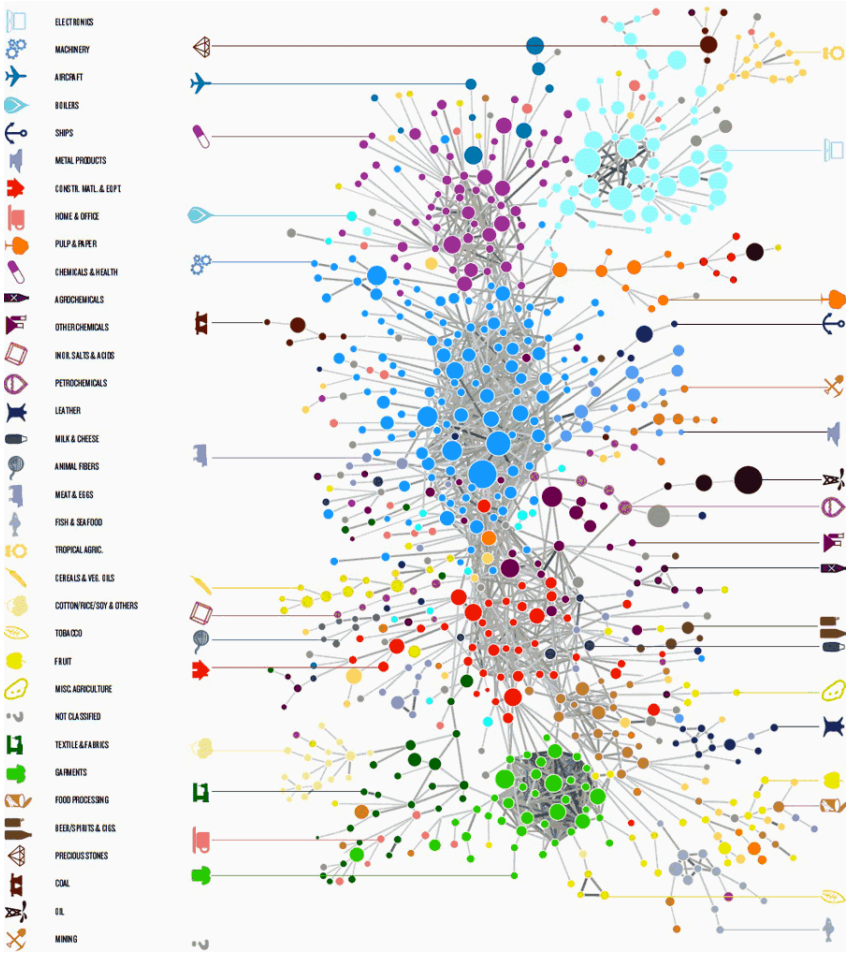


http://www.stefanieposavec.co.uk/entangled-word-bank/

http://atlas.media.mit.edu/

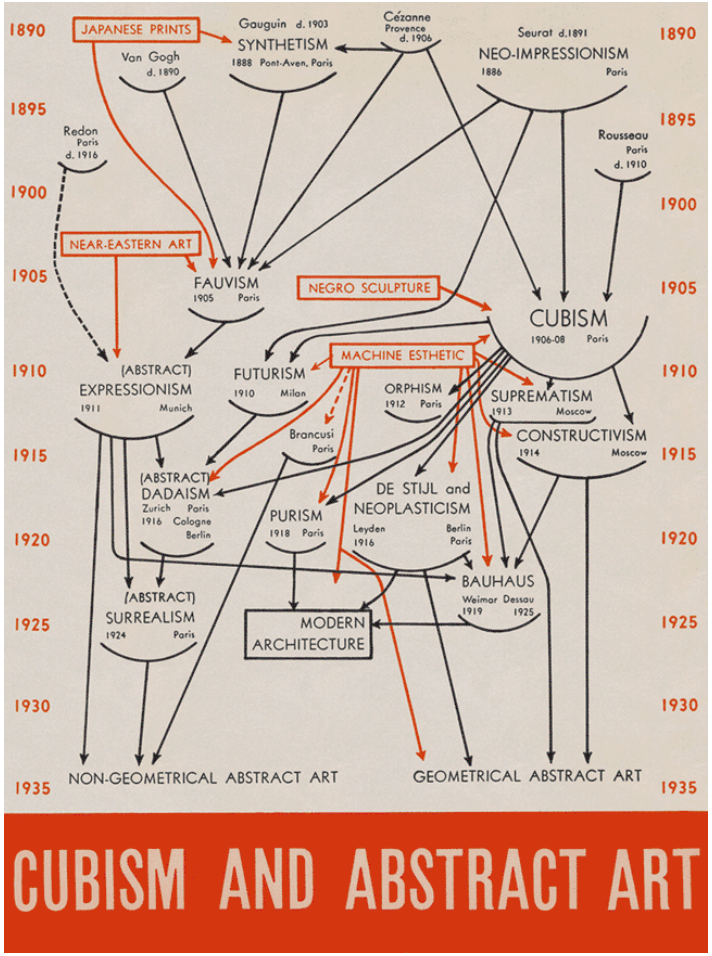
Networks



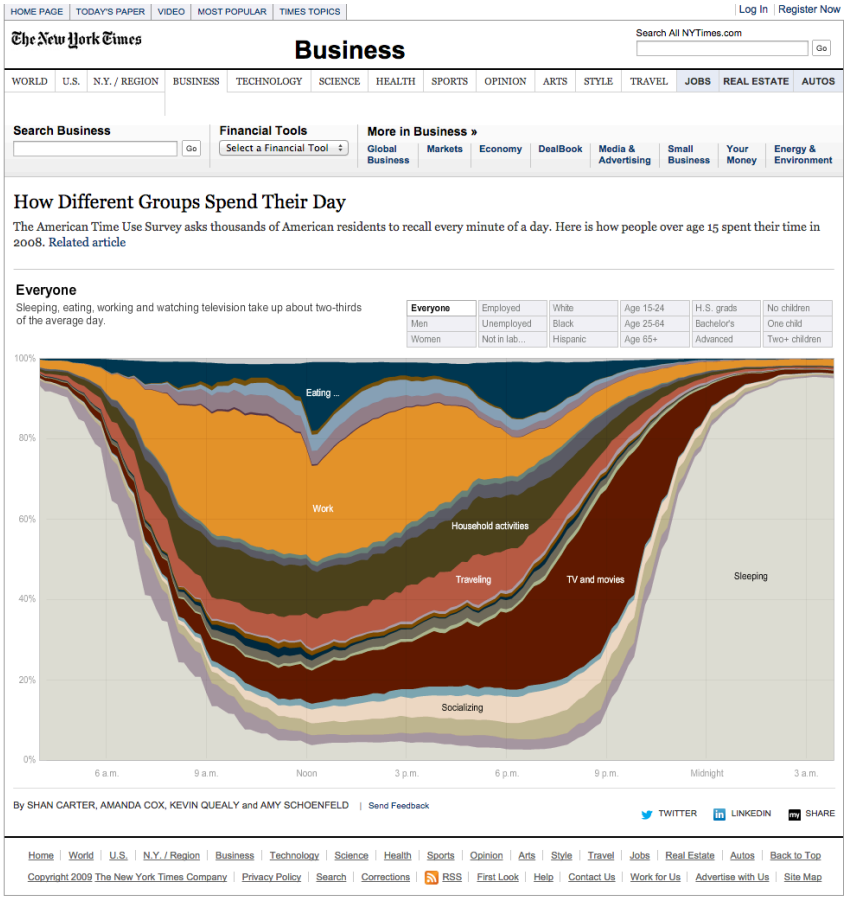


https://www.flickr.com/photos/blprnt/sets/72157614008027965/ http://atlas.media.mit.edu/

Temporal Structures

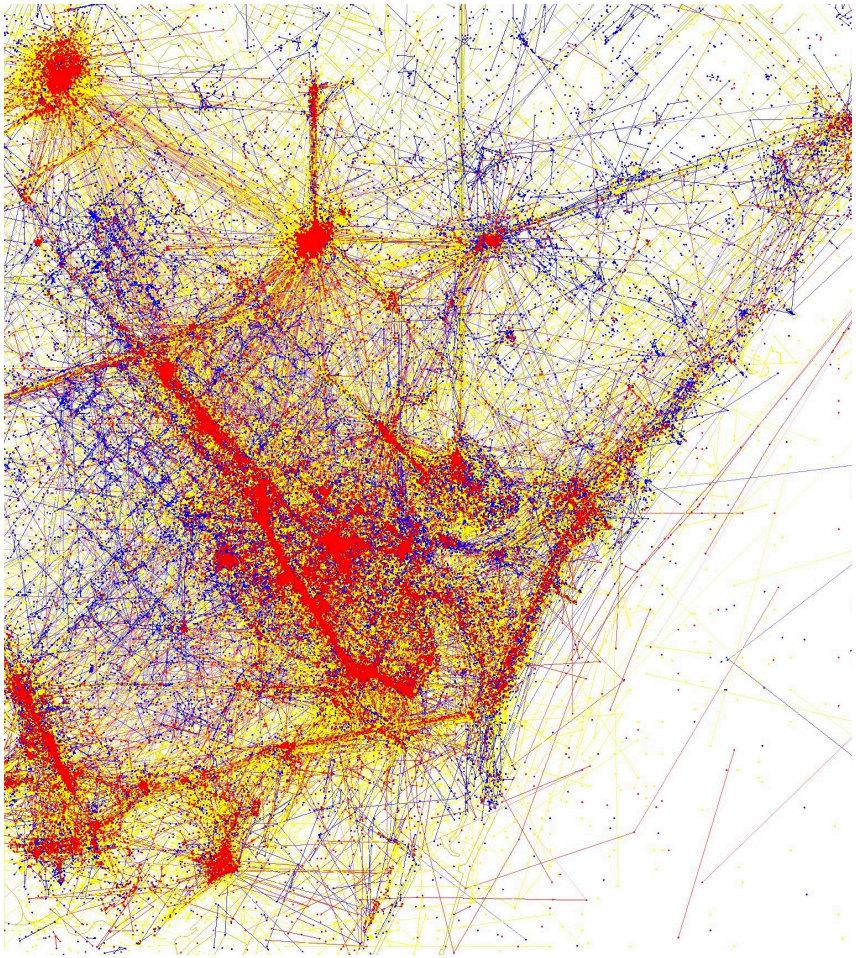


Cubism And Abstract Art (Alfred H. Barr 1936)



http://www.nytimes.com/interactive/2009/07/31/business/20080801-metrics-graphic.html

Maps



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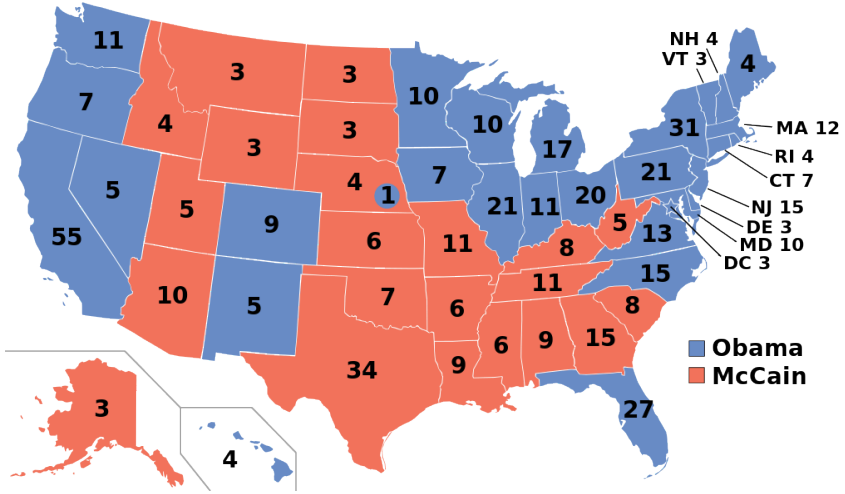
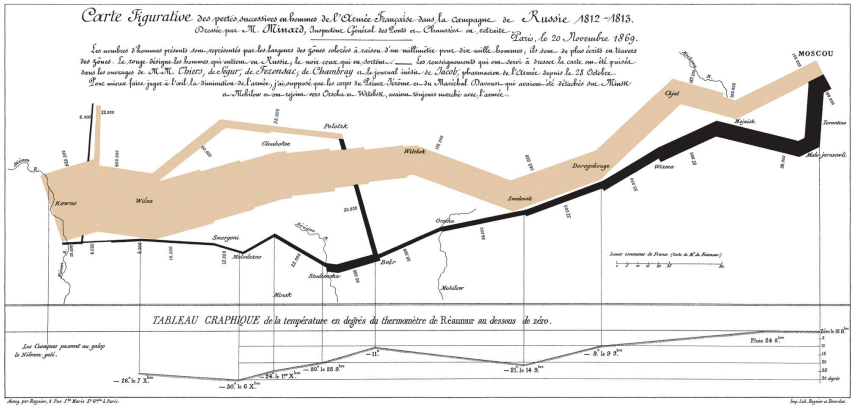
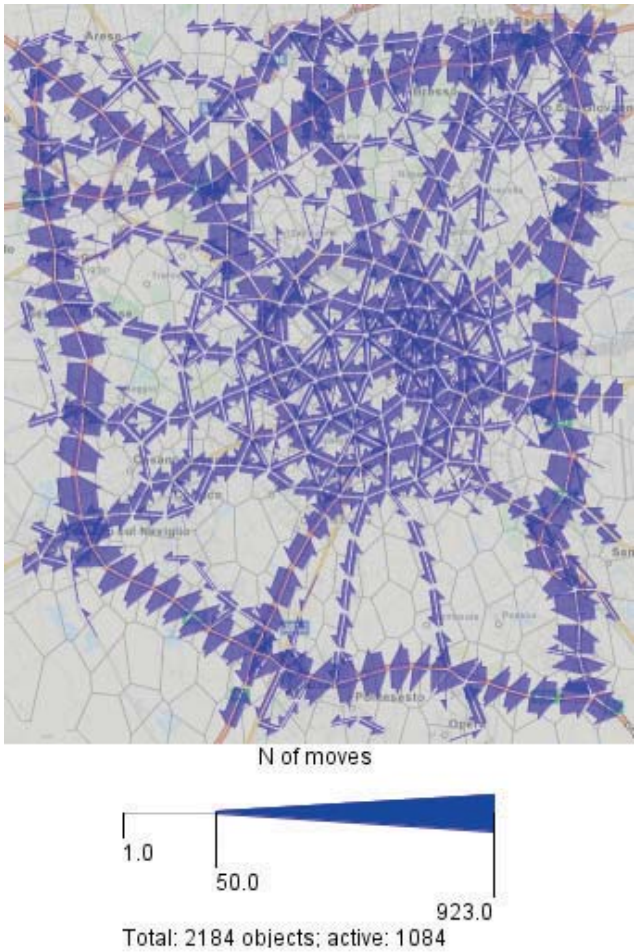


"ElectoralCollege2008" by Gage - Own work. Licensed under Public Domain via Wikimedia Commons - http://commons.wikimedia.org/wiki/File:ElectoralCollege2008.svg#mediaviewer/File:ElectoralCollege2008.svg

Spatio-Temporal data

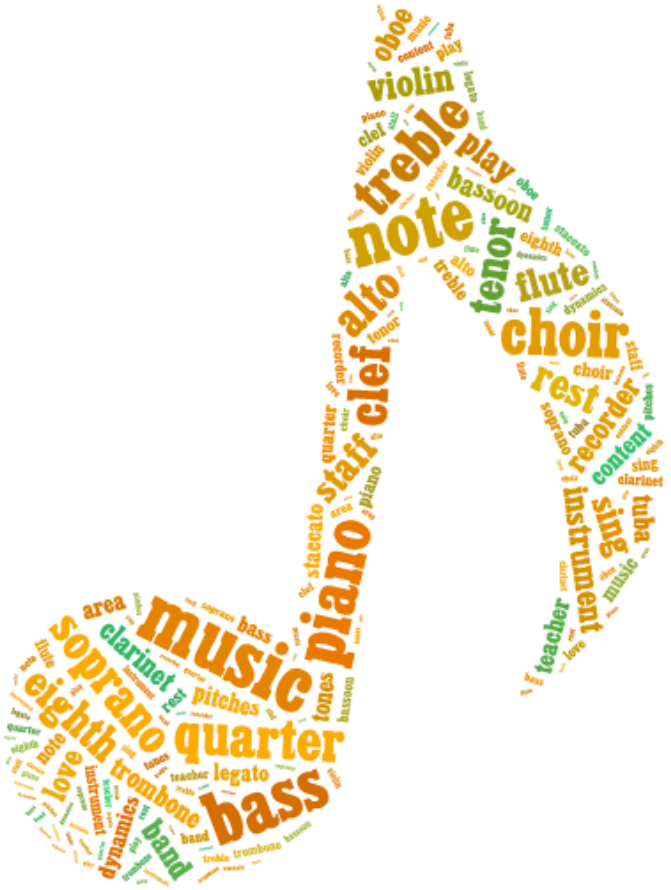


"Minard" by Charles Minard (1781-1870) - see upload log. Licensed under Public Domain via Wikimedia Commons - http://commons.wikimedia.org/wiki/File:Minard.png#mediaviewer/File:Minard.png



Visual Analytics of Movement.
G. Andrienko, N. Andrienko, P. Bak, D. Keim, S. Wrobel
Springer, 2013

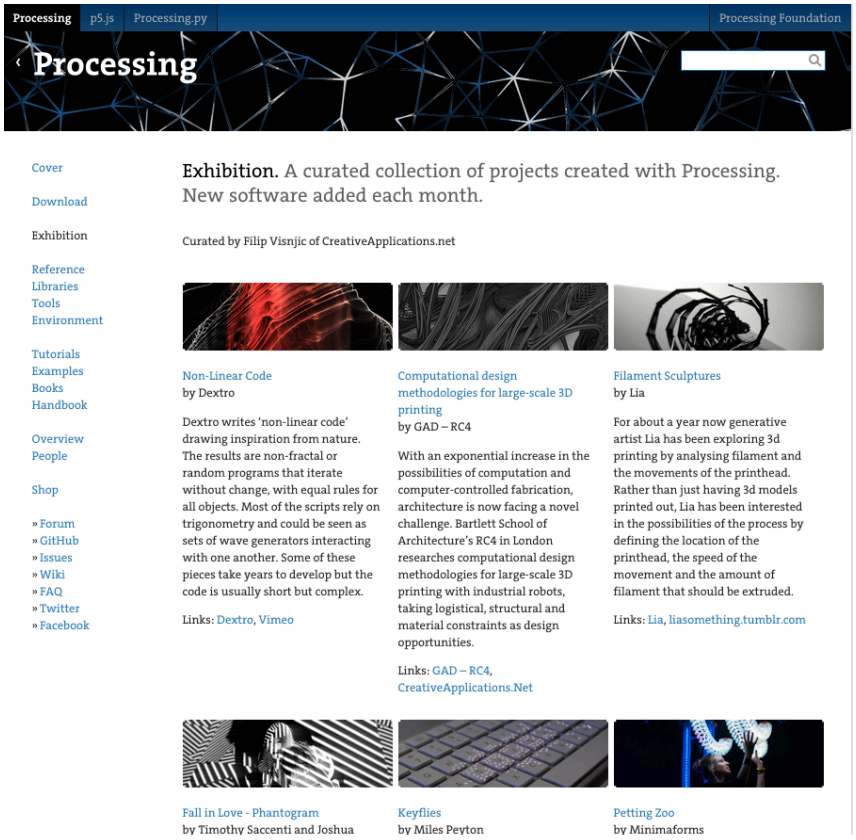
Text



http://benfry.com/writing/archives/529

Tools

Processing
processing.org



D3.js
d3js.org