Info 424

Information Visualization
Instructors: Maureen Stone & Polle Zellweger
TA: Marilyn Ostergren

Lab tomorrow only: MGH 030

Welcome

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Grading
Expectations
Questions
InfoVis

Introductions

Maureen Stone
StoneSoup Consulting

Polle Zellweger
MacZell Consulting

TA: Marilyn Ostergren

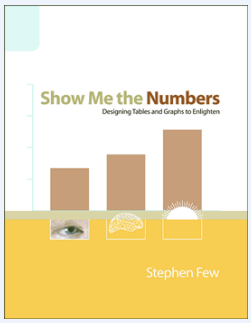
Students

Name, major, year in school

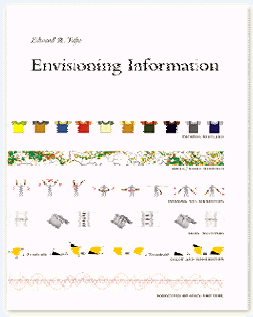
Goals

Students will be able to:

- Describe the key design guidelines and techniques used for the visual display of information, including their relationship to human perception
- Design interactive visualizations to support human activities, using real data and a user-centered process
- Explore and critically evaluate a wide range of visualization techniques and applications

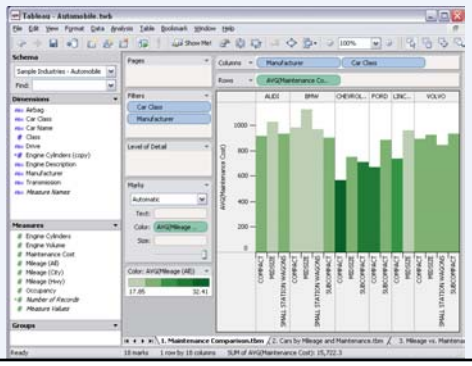


Show Me the Numbers
Designing Tables and Graphs to Enlighten
Stephen Few (2004)

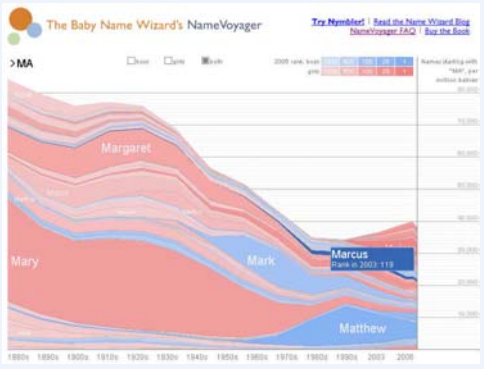


Envisioning Information
Edward Tufte (1990)

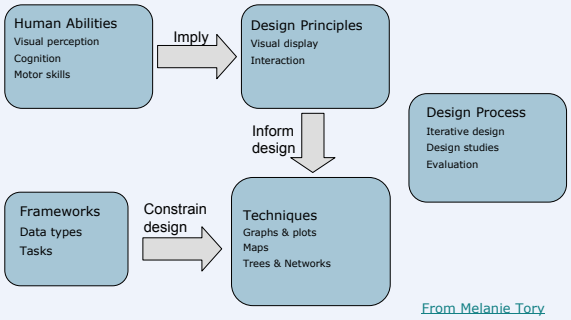
Tableau Software



Interactive Visualization Examples



Visualization Components



From Melanie Tory

Course Roadmap

Week 1
- Overview & fundamental concepts

Weeks 2-4
- Quantitative visualization in depth
- *Show Me the Numbers* & Tableau

Weeks 5-8
- *Envisioning Information*
- Interactive visualization

Weeks 9-11
- Project
- Design studies & guest speakers

Readings
4-6 assignments, mostly tied to labs
Summary assignment

Project

Project

In teams of 3-4 students, design and simulate an interactive visualization system based on real data

Phase I, Oct 19-30
- Select, analyze and present your data
- Uses Few's principles and Tableau

Phase II, Nov 1-Dec 6
- Design and simulate an interactive tool
- Brainstorm, select, refine
- "Implement"
- Present last week of class

Final report due Dec 10

Assignments

General
- Analyze and critique visualizations
- Use Tableau to explore, refine and visualize real-world data
- Explore and compare visualization systems
- Summary assignment (mini-midterm)

Project related
- Use Tableau to explore, refine and visualize project data
- Analyze and provide feedback on classmates' projects

Grading

45% Project related activities
- 25-30% group
- 15-20% individual
- Includes feedback to other projects

45% 5-7 additional assignments
- 1-3 critiques
- 2 Tableau data analysis
- Tree system comparison
- Summary assignment

10% Class participation
- Attend and participate in class and labs
- Send reading responses to info424@gmail.com

iSchool Guidelines

Class structure

Two lectures (Tue/Thu)
- 1:00-2:00 Lecture time
- 2:00-2:20 Discuss, demo, etc.

Friday lab
- 1:30-3:20
- Hands-on computer activities
- Project presentations

Work outside of class
- Readings
- Assignments
- Project

Readings and reflection questions on web site

Lecture slides will be posted after the class

Expectations

At lecture
- Class starts promptly at 1:00. Be ready
- Limit your laptop use

At lab
- Class starts promptly at 1:30
- Use the computers for the assignment given

Outside of class
- Check class web site and email regularly
- Get your assignments in on time
- Communicate problems or concerns early

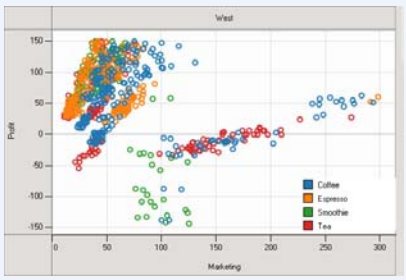
Questions?

Information Visualization

Graphical presentation of information
- Charts, graphs, diagrams, maps, illustrations
- Originally hand-crafted, static
- Now computer-generated, dynamic, interactive

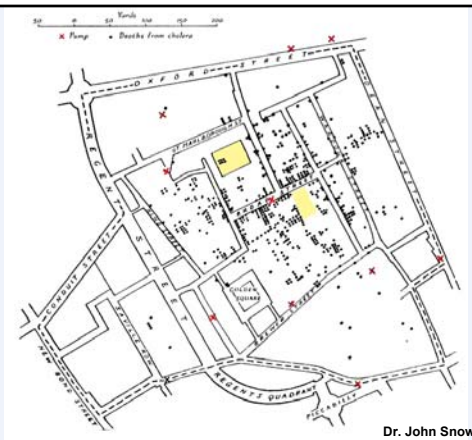
www.nps.gov

Data → Pictures → Insight

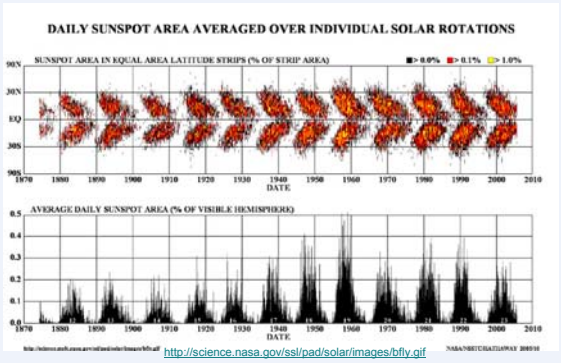


"Using vision to think" —*J. Bertin*

Lambert 1765 (x,y grid)

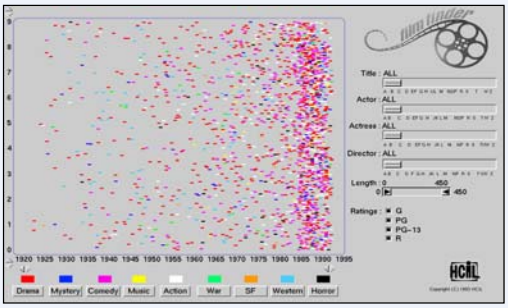


From Maunder, 1874-1904



http://science.nasa.gov/ssl/pad/solar/images/bfly.gif

FilmFinder, 1994



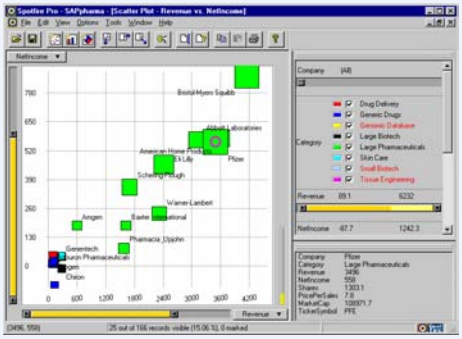
Ahlberg & Shneiderman, U of Maryland Video

ThemeScape, 1995

Millions of Documents

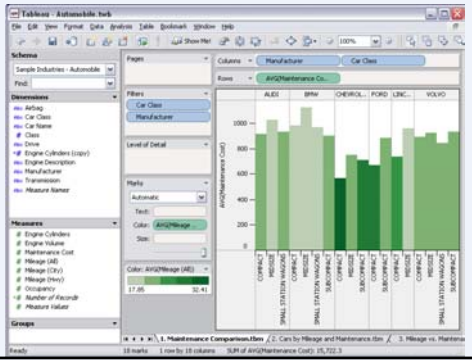
Courtesy of Cartia

Spotfire



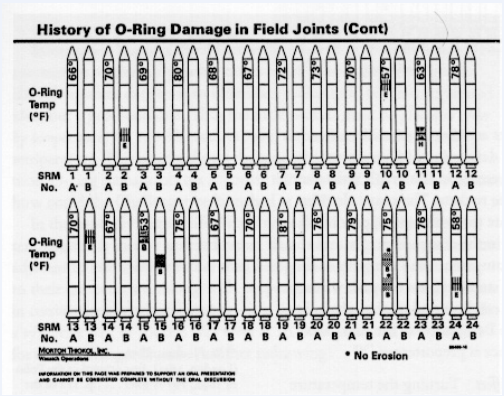
http://www.spotfire.com/

Tableau Software



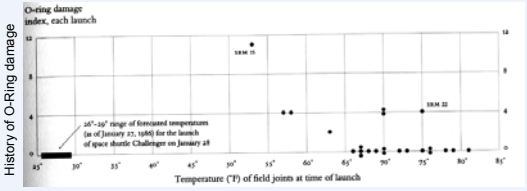
Space Shuttle *Challenger* (1986)

Aerospaceweb.com



Original NASA visualization

The goal of visualization is insight (not pictures)



Launch Temperature

Designed by Tufte after the disaster

Questions?

Lab Tomorrow

Special location: MGH 030 (and MGH 044)
Labs normally in: MGH 430

Explore and analyze interactive InfoVis Tools

Gapminder video

Gapminder home: http://www.gapminder.org/
Video Lecture from 2006 TED Conference