Information Visualization

Lecture 1 CPSC 533C, Spring 2004
12 Jan 2003
Tamara Munzner

Outline
My History
Course Structure

The Geometry Center
1991–1995 Technical Staff

The National Science and Technology Center for Computation and Visualization of Geometric Structures

mathematical (geometry and topology) visualization

GC: General-purpose visualization
Geomview
- very flexible, several thousand users in many domains
- supports noneuclidean spaces, higher dimensions

www.geom.umn.edu/software/geomview

GC: Visualization videos
explain advanced topology to general audience

Outside In

The Shape of Space

Thesis: Interactive Navigation of Large Graphs and Networks
1995–2000 PhD Stanford

H3
Planet Multicast
Constellation

[Munzner, Huffman, Cliffy, and Kermer 1996]
[Munzner, Gembrohkom, and Reubenstein 1995]
**SGI: Site Manager**

web site content management tool
- H3 view of site hyperlink structure
- shipped from Irix 6.2 on

[www.sgi.com/software/sitemgr.html]

**Compaq Systems Research Center**

2000–2002, Research Scientist
TreeJuxtaposer
- visual comparison of large evolutionary trees

[Munzner, Guimbretiere, Zhang, Taisiran, and Zhou. 2003]
[Slack, Munzner 2003]

**Research area: infovis**

scalability to large datasets

fluid navigation

InfoVis Symposium organization
- Program Co-Chair 2003, 2004
- Posters Co-Chair 2001, 2002

**Course Home Page**

permanent URL
- http://www.cs.ubc.ca/~tmn/courses/cpsc533c-04-spr

shortcut
- http://www.cs.ubc.ca/~tmn/courses/533

reload frequently, updates common!

**Course Structure**

first part
- professor lectures
- all do core readings

second part
- student presentations
- presenter does topic readings

requirements
- presentation
- small assignments
- project
- class participation

**Projects**

choice 1: programming
- like last year
- I will only consider supervising students who do programming projects

choice 2: analysis
- use existing tools on dataset
- detailed domain survey
- suitable for non-CS students

stages
- meeting with me in person
- proposal Mar 1
- update presentations Mar 15–17
- final report/presentation Apr 21
Topic Presentations

second half of class

later: topics + readings posted, signup

material
- 3 papers from my suggestions
- 2 papers found on your own

talk
- slides required
- critical points of papers
- comparison and critique
- not just outline!

Required Books

Ware
Information Visualization: Perception for Design
- 7 copies this week at bookstore
- more later in Jan, or Amazon

Tufte
Envisioning Information
- later in Jan, or Amazon
- first reading due Jan 28

Lewis and Reiman
Task-Centered User Interface Design
- online book
- only required if no HCI course

Reserve Books

Information Visualization: Perception for Design, Colin Ware
- as soon as it is returned


Readings in Information Visualization: Using Vision To Think; Card, Mackinlay, and Shneiderman, eds; Morgan Kaufmann 1999.

The Visualization Toolkit, 2nd edition. Schroeder, Martin and Lorensen; Prentice Hall 1998

Assignment 1

find and critique two images
- one good visualization
- one bad visualization

make web page, send me URL by noon Wed
- pictures, two paragraphs for each
- first par: story
- second par: specific critique
- accessibility
- clarity
- accuracy
- other important design criteria

be prepared to discuss for 3 minutes in class

Assignment 1

sources
- textbook
- journal
  - Journal of Applied Optics, ...
  - science magazine
    - Nature, Science, Scientific American, ...
  - news magazine or newspaper
    - Newsweek, Economist, NY Times, USA Today, ...

domains
- mathematics
- physical sciences
  - astronomy, physics, chemistry, ...
- biological sciences
  - ecology, medicine, bioinformatics, ...
- social sciences
  - economics, crime statistics, ...

Lecture Topics