

# Presentations Graphs and Trees

Lecture 13 CPSC 533C, Spring 2004

1 Mar 2004

## Topic Presentations

### material

- 2 papers from my suggestions
- 1 paper found on your own

### talk

- 25 minutes, firm time limit  
practice to get timing right!
- slides required
- critical points of papers
- comparison and critique  
not just outline

2

## Topics

- software viz
- document collection viz
- computer networks viz
- databases/datamining viz
- cartographic viz
- social networks viz
- time-series data viz
- frameworks/taxonomies
- perception
- high dimensionality
- interaction
- focus+context
- navigation/zooming
- hierarchy visualization
- graph drawing
- evaluation
- glyphs
- animation
- brushing/linking

3

## Action Item

### topic choice

### send me email

- request top three topic choices
- veto up to three of eight days

4

## Topic Presentations

slides are due on the day of class

- noon if you use my laptop
- 4pm if you use your own laptop

post on your web site, send URL

- do not send me huge files directly

slide format

- PowerPoint or PDF or HTML fine
- check in advance for anything else if using my laptop

5

## Update Presentations

Mar 15, 17: schedule will be posted

- 9 minutes each
- must practice to fit

proposals will be posted  
read classmates' proposals before class

what to cover

- project goals, background
- infovis approach
- progress toward milestones so far

slides required

- due 10am if on my laptop

6

## Graphs and Trees

### Hermann survey

Graph Visualisation in Information Visualisation: a Survey, van Herman, Guy Melancon, M. Scott Marshall. IEEE Transactions on Visualization and Computer Graphics, 6(1), pp. 24-44, 2000. <http://citeseer.nj.nec.com/herman00graph.html>

### Animated Radial Layouts

Animated Exploration of Graphs with Radial Layout. Ka-Ping Yee, Danyel Fisher, Rachna Dhamija, and Marti Hearst, Proc InfoVis 2001. <http://baillando.sims.berkeley.edu/papers/infovis01.htm>

### SpaceTree

SpaceTree: Supporting Exploration in Large Node Link Tree, Design Evolution and Empirical Evaluation. Catherine Plaisant, Jesse Grosjean, and Ben B. Bederson. Proc. InfoVis 2002. <http://ftp.cs.umd.edu/pub/hcil/Reports-Abstracts-Bibliography/2002-05html/2002-05.pdf>

### Cushion TreeMaps

Cushion Treemaps. Jack J. van Wijk and Huub van de Wetering, Proc InfoVis 1999, pp 73-78. <http://www.win.tue.nl/~vanwijk/ctm.pdf>

### Multiscale Small-World Graphs

Multiscale Visualization of Small World Networks. David Auber, Yves Chircota, Fabien Jourdan, Guy Melancon, Proc. InfoVis 2003.

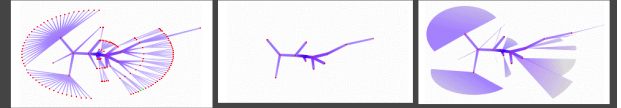
7

## Hermann survey

true survey, won't try to summarize here

nice abstraction work by authors

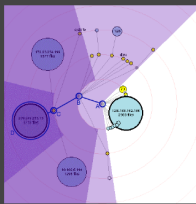
- Strahler skeletonization
- ghosting, hiding, grouping



8

## Animated Radial Layouts

static radial layouts: known algorithm



9

## Dynamic Graph Layout

little previous work

- DynaDAG [North, Graph Drawing 95]
- DA-TU [Huang, Graph Drawing 98]

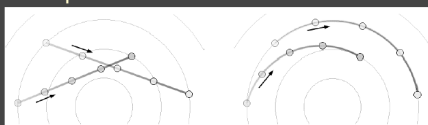
minimize visual changes  
stay true to current dataset structure

[video]

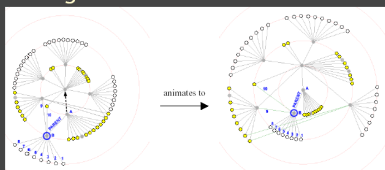
10

## Animation

polar interpolation



maintain neighbor order

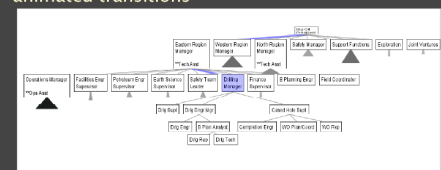


11

## SpaceTree

focus+context tree

- animated transitions



semantic zooming

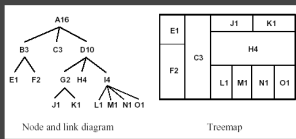


[demo]

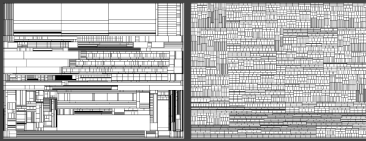
12

## Treemaps

containment not connection



difficulties reading

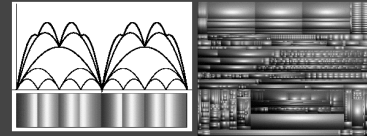


13

## Cushion Treemaps

show structure with shading

· scale parameter controls global vs. local



14

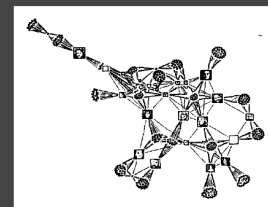
## Cushion Treemaps

application

- SequoiaView, Windows app
- hard drive usage
- <http://www.win.tue.nl/sequoiaview/>

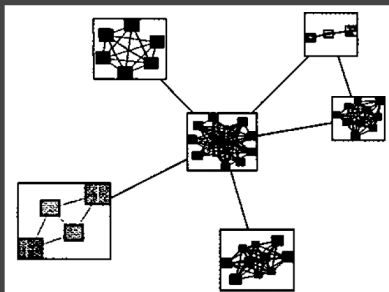
15

## Multiscale Small-World



16

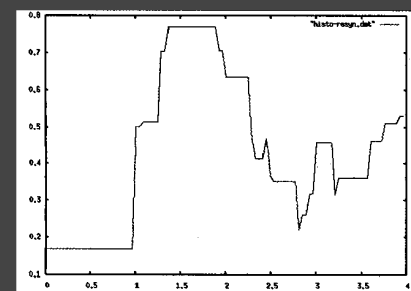
## Multiscale Decomposition



17

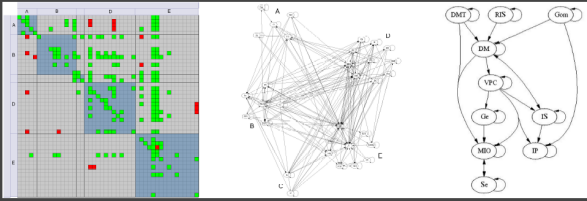
## Quality Metric

automatically determine how many clusters



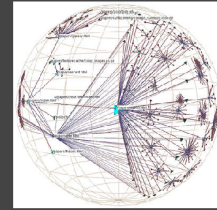
18

## Previous: Multilevel Call Matrices



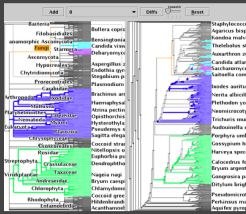
19

## Previous: H3



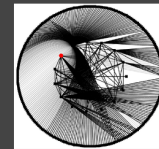
20

## Previous: TJ



21

## Previous: EdgeLens



[video]