Ch 15: Analysis Case Studies

Paper: Algebraic

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CPSC 547, Information Visualization

Lecture 15: 10 November 2015

Scagnostics analysis

- Nine quantitative attributes per scatterplot (panorama combination of original attributes);
- Identify, compare, and summarize; distributions and correlation.

VisDB

- Table: draw pixels sorted, colored by relevance
- Group by attribute or partition by attribute into multiple views

VisDB Results

- Partition into many small regions; dimensions grouped together

VisDB Analysis

- Hierarchical Clustering Explorer
  - Heatmap, dendrogram
  - Multiple views

HCE Analysis

- InterRing Analysis
  - Original hierarchy
  - Blue subtree expanded
  - Can subtree expanded

VisDB


VisDB Results

[VisDB Results: partition into small number of views; inspect each attribute]

HCE


Graph-Theoretic Scagnostics

- Scatterplot diagnostics
  - Scagnostics SPLOM: each point is one original scatterplot

PivotGraph

[Visual Exploration of Multivariate Graphs, Martin Wattenberg, CHI 2006.]

News

- Presentation topics/papers/dates posted

Analysis Case Studies

- Scagnostics
- VisDB
- InterRing

Summary

Next Time
• presentations continue
  • no further assigned readings for everybody
• presentations
  • 4 per class, 20 minutes each total
    • plans on 15-17 min present, 3-5 minute questions
    • note typew in mind!
• update presentations due Mon Nov 23
  • type on web page - not Nov Mon 4
  • new this year: full draft of previous work section of final report
  • look of your mark will be on what’s in this update
  • goal do this up front not at the end!

Analysis example: Constellation
• data
  • multi-level network
  • node weights
  • link weights used in same dictionary definition
• subgraph for each definition
• visual encoding
• link connection marks between words
• link containment marks to indicate subgraphs
• encode plausibility with node/spatial position
• query for high-weight paths between 2 nodes
• query for short paths among node trajectories

Using space: Constellation
• visual encoding
  • link connection marks between words
  • link containment marks to indicate subgraphs
  • encode plausibility with node/spatial position
  • encode source/link for query with spatial position
• spatial layout
  • cur/linear grid more room for lower plausibility paths

Using space: PivotGraph
• edge crossings
  • cannot easily minimize instances, since position constrained by spatial encoding
  • instead minimize perceptual impact
• view: superimposed layers
  • dynamic foreground/background layers on reassessment using order
• four kinds of constellations
  • definition/path link type word
    • not just 3-hop neighbors

Using space: PivotGraph
• invariance violation: single dataset, many visualizations
  • hallucinator
• unambiguity violation: many datasets, same vis
  • unambiguous/confuser
• correspondence violation
  • can’t see change of data in vis
    • jumbler
    • salient change in vis not due to significant change in data
  • mismatch
    • match mathematical structure in data with visual perception
• we can X the data; can’t we Y the image?
  • are important data changes well-reached with obvious visual changes?

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