Space/Order

Lecture 8 CPSC 533C, Fall 2005
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Reading

Trellis
- find order automatically: main-effects
  dot plots, matrices of small multiples
- choice of spacefilling pixel pattern
  small multiples
- side by side better than comparing to memory
  narratives of space and time
- using spatial position to encode temporal data
  derived spaces

ViDB
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Reordering: Bertin
reorderable matrices – manually!

[Bertin, Graphics and Graphic Information Processing, p 34]

Reordering: Table Lens
select: column to sort
 demos available at www.tablelens.com

we'll discuss focus + context aspects later

Interactive Ordering: Rivet
performance analysis of parallel system

**Automatic Ordering Support: Trellis**

- Main effects: sort by median value
- Alphabetical

**Statistically-Based Techniques**

- Derived spaces
  - partial residuals
  - differencing taking means into account
- Conditioning intervals
  - Equal count algorithm
  - Significance (overlapping windows) not bins
- Banking to 45 degrees
  - Use psychophysics into account

**Banking to 45 Degrees**

- Principle: most accurate judgement at 45 degrees
- Pick aspect ratio (height/width) accordingly

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**Spacefilling Pixels: VisDB**

- How to draw pixels?
  - Sort, color by relevance
- Local ordering
  - Spiral
  - 2D

**VisDB Windows**

- Group dimensions
- Separate dimensions

**VisDB Results: Separate Dimensions**

- Spiral
- 2D
VisDB Results: Grouped Dimensions

Space vs. Time: Showing Change
literal  abstract
<-- time for time --> space for time
animation: show time using temporal change
- good: show process
- bad: compare by flipping between two things
- bad: compare between many things

Space vs. Time: Showing Change
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- good: compare by flipping between two things
- bad: compare between many things
- interference from intermediate frames

Space vs. Time: Showing Change
literal  abstract
<-- time for time --> space for time
small multiples: show time using space
- overview: show each time step in array
- compare: side-by-side easier than temporal external cognition instead of internal memory
- general technique, not just for temporal changes

[Edward Tufte. The Visual Display of Quantitative Information, p. 172]
Derived Spaces: Slope
narrative of space and time
Marey train schedule, 1885
- horizontal line length: time
- slope: speed
- intersection: place of crossing

Linked Derived Spaces
Feature Detection in Linked Derived Spaces
- [video]

Ordering
space for time

Superscalar Processes
[video]