

Interaction

Week 10 CPSC 533C, Spring 2004

11 Feb 2004

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- Ware: Interaction
- Cognitive Co-Processor
- SDM
- Dynamic Queries
- Toolglass/Magic Lenses
- more interaction
 - Influence Explorer
 - LifeLines
 - Hierarchical Clustering Explorer
 - Exploratory Data Views
- ThemeScapes video (if time)

Ware Interaction

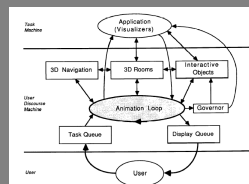
- control loops
 - Fitts' Law
 - time to select depends on distance, target size
- learning
 - power law of practice
- vigilance
 - difficult, erodes with fatigue
- navigation
 - next time

Ware Interaction

- rapid interaction
 - dynamic queries
 - brushing (linked highlighting)
- problem solving loops
 - external representations
 - external memory vs internal (working, LT, ST)
 - memory extensions enable otherwise impossible tasks
 - visual spatial reasoning

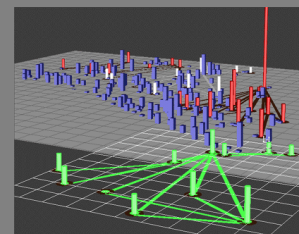
Cognitive Co-Processor

- animated transitions
 - object constancy
 - fixed frame rate required
- architectural solution
 - split work into small chunks
 - animation vs. idle states
 - governor controls frame rate
- [video: 3D rooms]



SDM

- sophisticated selection, highlighting,
- object manipulation
- [video]

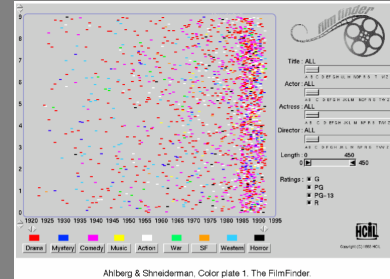


Dynamic Queries: HomeFinder

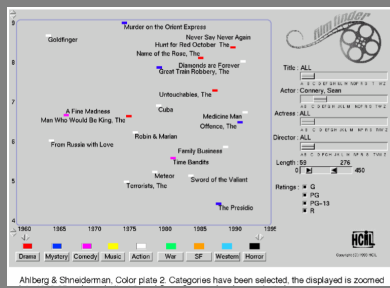
- filter with immediate visual feedback
- “starfield”: scatterplot
- [video]



DQ 2: FilmFinder

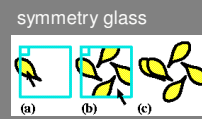


DQ 2: FilmFinder

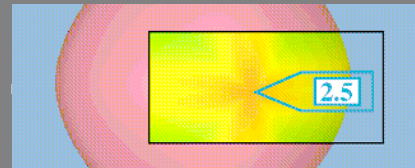


Toolglass/Magic Lens

- see-through
- two-handed



curvature lens



More Linked Views

key infovis interaction principle

so far: Ware, trellis, xgobi, cluster calendar, parallel coords brushing, ...

new examples:

Attribute Explorer
LifeLines
Hierarchical Clustering Explorer
EDV

Influence/Attribute Explorer

- Visualization for Functional Design, Bob Spense, Lisa Tweedie, Huw Dawkes, Hua Su, InfoVis 95

[video]

LifeLines

- LifeLines: Visualizing Personal Histories. B. Milash, C. Plaisant, A. Rose (University of Maryland). CHI 96 Video Program
- [video]

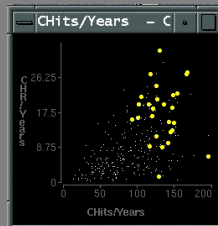
EDV

Exploratory Data Visualizer

Graham J. Wills. [Visual Exploration of Large Structured Datasets](#). In *New Techniques and Trends in Statistics*, 237-246. IOS Press, 1995.

Highlighting (Focusing)

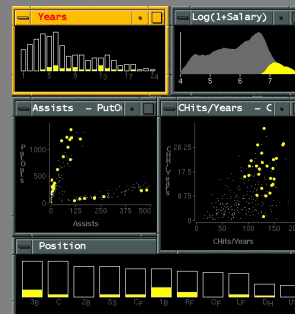
Focus user attention on a subset of the data within one graph (from Wills 95)



[www.sims.berkeley.edu/courses/is247/s02/lectures/Lecture3.ppt]

Link different types of graphs: Scatterplots and histograms and bars

(from Wills 95)



[www.sims.berkeley.edu/courses/is247/s02/lectures/Lecture3.ppt]

Baseball data: Scatterplots and histograms and bars

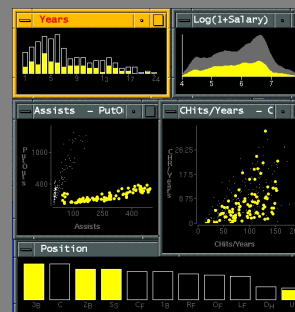
(from Wills 95)



[www.sims.berkeley.edu/courses/is247/s02/lectures/Lecture3.ppt]

Linking types of assist behavior to position played

(from Wills 95)



[www.sims.berkeley.edu/courses/is247/s02/lectures/Lecture3.ppt]

HCE

Hierarchical Clustering Explorer

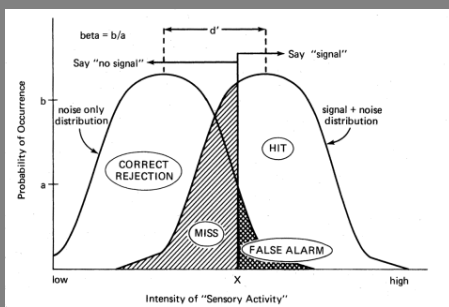
Jinwook Seo, Ben Shneiderman,
"Interactively Exploring Hierarchical
Clustering Results," IEEE Computer,
Volume 35, Number 7, pp. 80-86, July
2002.

HCE

- Linked views
- Dendrogram navigation
- Comparing multiple dendrograms

[demo]

False negatives vs. positives



[graphics.stanford.edu/courses/cs448b-02-spring/lectures/interaction/walk036.html]