Visualization by Demonstration: An Interaction Paradigm for Visual Data Exploration

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Data Exploration without Specification
Introduction

Use demonstrations to generate:
- visualizations techniques
- mappings
- parameters
Contributions
Visualization by Demonstration

1. Does not require users to specify vis techniques

2. Extracts vis mappings and parameters
Video

https://www.youtube.com/watch?v=JFdStB0nYRs
Design Guidelines
1. Support direct manipulation
2. Balance human/system workload
3. Enable user interactions to drive transformations
4. Enhance interpretability of recommendations
VisExemplar

ThinkBoard

Detail View

Recommendation Gallery
1. Support **direct manipulation**
2. Balance **human/system** workload
3. Enable user **interactions** to drive **transformations**
4. Enhance **interpretability** of recommendations
WHAT

WHY

HOW

SCALE

Table

Explore, compare, and summarize

Scatterplots and bar charts

Manipulation: resize, recolor, reposition

Hundreds or Thousands
Task Example
Scatterplot based on Retail Price and City MPG
Potential Transformations
1. Visual Representation
2. Data Mapping
3. Axes
4. View Specification
1. Visual Representation

2. Data Mapping

3. Axes

4. View Specification
1. Visual Representation
2. Data Mapping
3. Axes
4. View Specification
1. Visual Representation
2. Data Mapping
3. Axes
4. View Specification
Recommendation Engine
Discussion
Tradeoff between flexibility of vis-by-demonstration vs. the loss of formality
Other vis techniques
3

No sophisticated analytic operations
Transforming to vis techniques with different graphical encodings
Consistency in visual mappings
Exploring methods of presenting recommendations in visualizations
Critique

1. No validation
2. Need to keep track of favorite points -> makes comparison hard
3. Cannot set axis to a certain attribute
4. Great start to the exploration problem.
Thank you!

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