

Visualization by Demonstration: An Interaction Paradigm for Visual Data Exploration

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Dilan Ustek 7 March 2017

Data Exploration without Specification



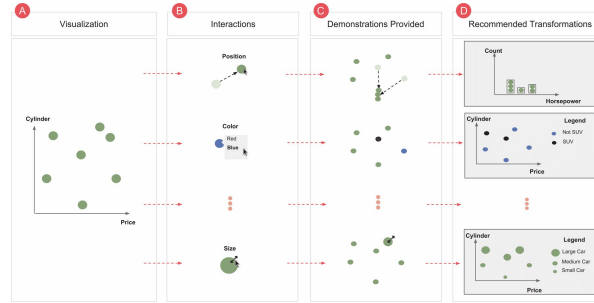
Introduction

- 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=JFdSiB0nYBs>

Design Guidelines

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

VisExemplar



1. Support **direct manipulation**



2. Balance **human/system workload**



3. Enable user **interactions** to drive **transformations**



4. Enhance **interpretability** of recommendations



WHAT



Table

WHY

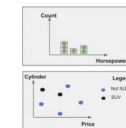
Explore, compare, and summarize

HOW

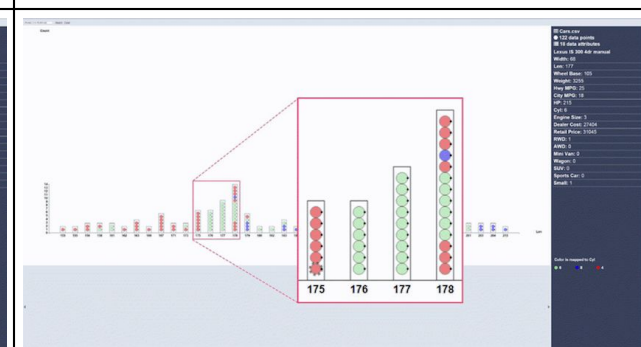
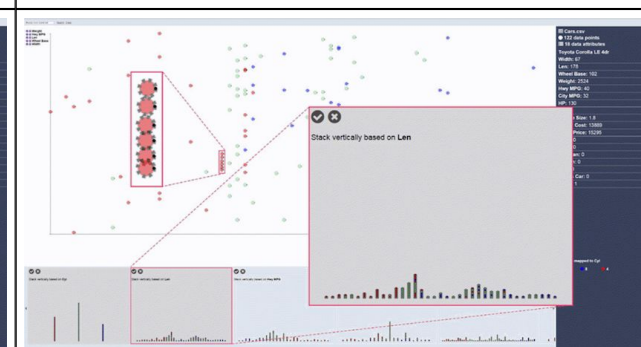
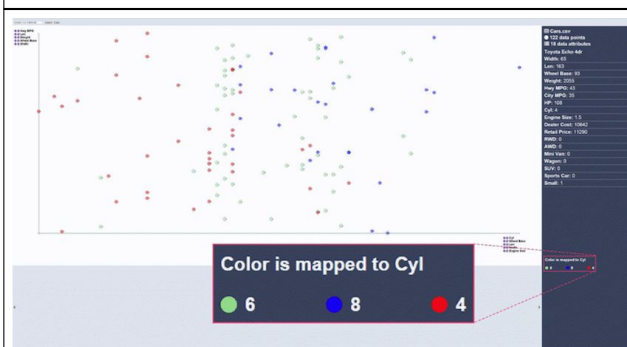
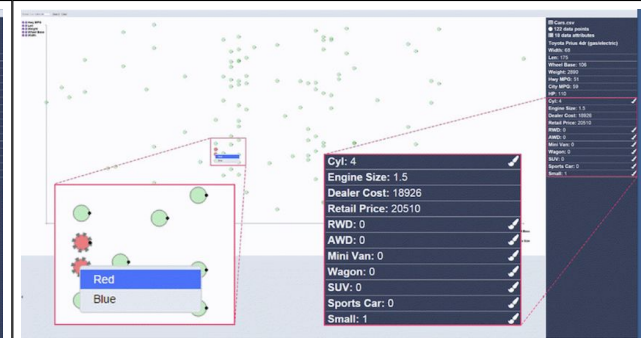
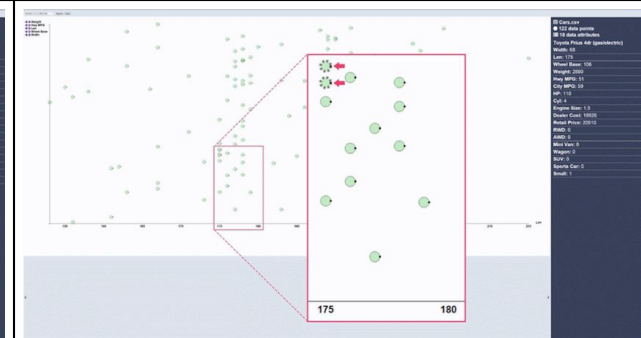
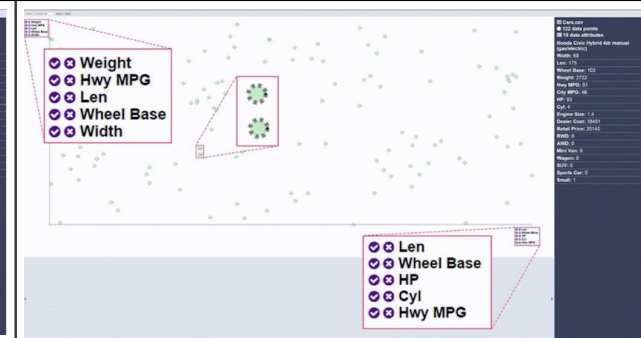
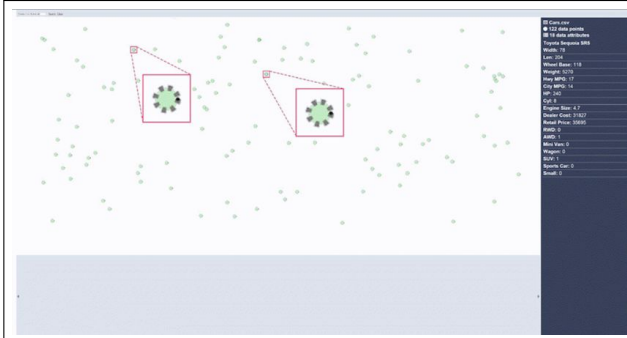
Scatterplots and bar charts
Manipulation: resize, recolor, reposition

SCALE

Hundreds or Thousands



Task Example



Potential Transformations

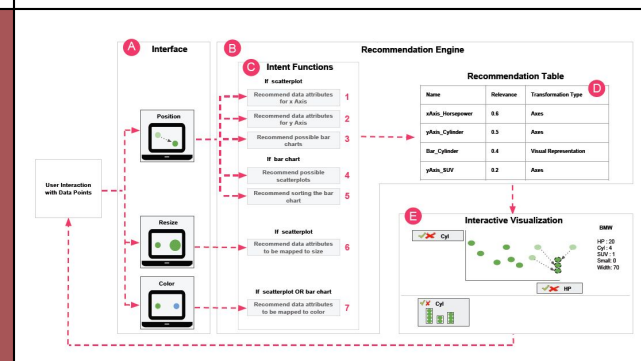
1. Visual Representation
2. Data Mapping
3. Axes
4. View Specification

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Recommendation Engine



Discussion

1

Tradeoff between flexibility of vis-by-demonstration vs. the loss of formality

2

Other vis techniques

3

No sophisticated analytic operations

4

Transforming to vis techniques with different graphical encodings

5

Consistency in visual mappings

6

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!

Dilan Ustek