

BRUSHING UND LINKING

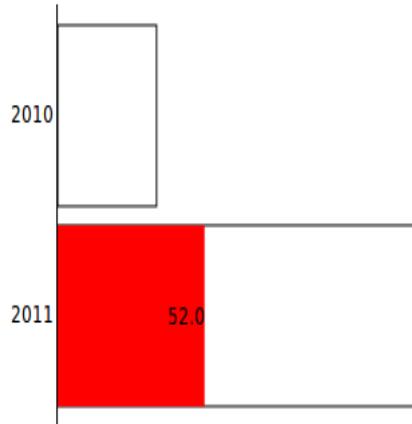
Essay 1- Supporting Awareness through Collaborative Brushing and Linking of Tabular Data

Essay 2- Brushing of Attribute Clouds for the Visualization of Multivariate Data

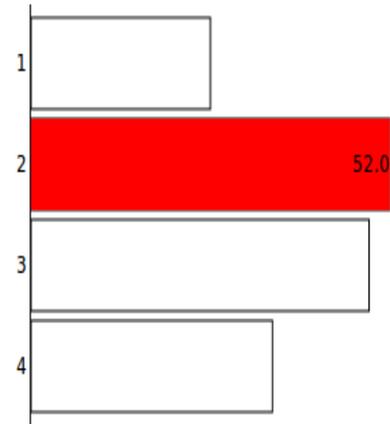
Supporting Awareness through Collaborative Brushing and Linking of Tabular Data

Brushing and linking is a mechanism commonly used in visualization tools to help people explore relationships between data in different but related views.

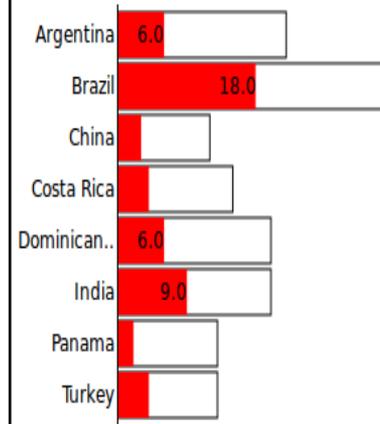
Decision Year



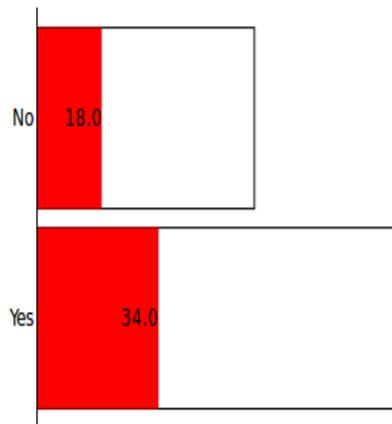
Quarter



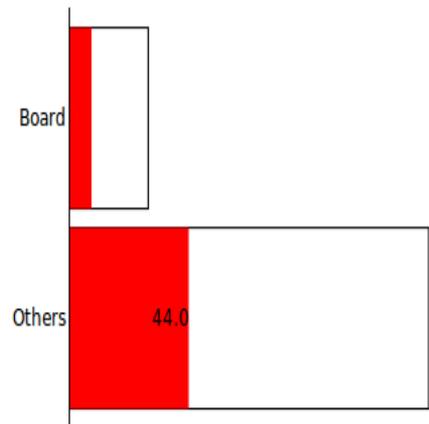
Country



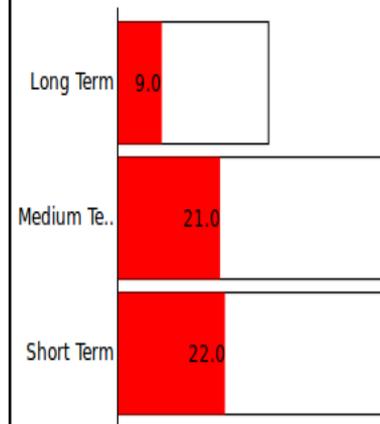
Brokered?



Decision Authority

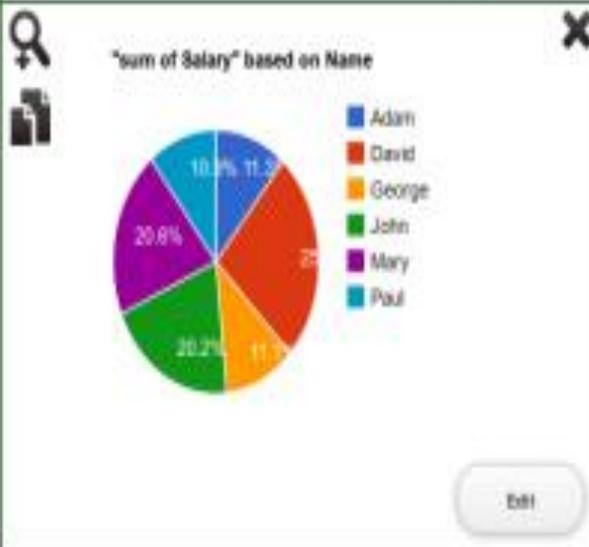
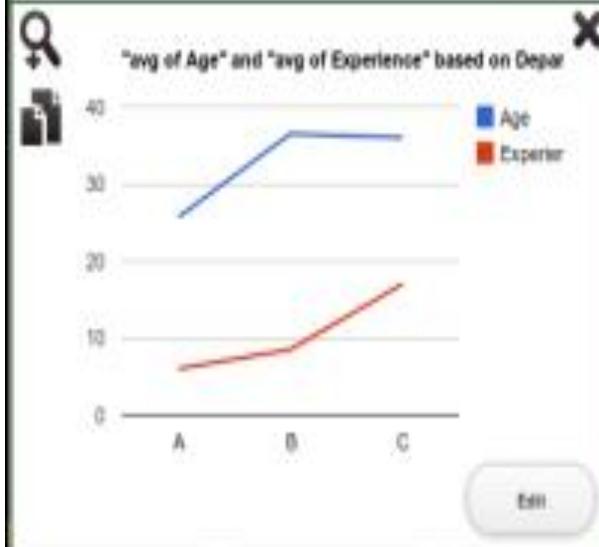
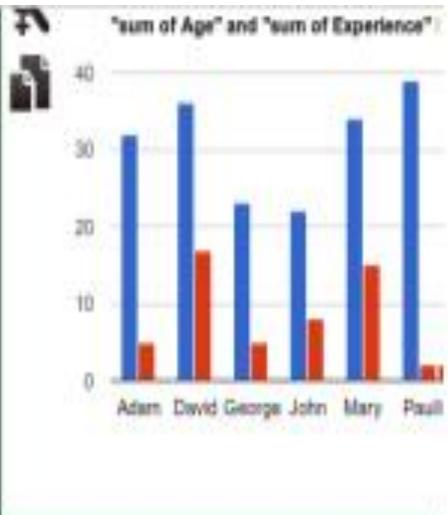
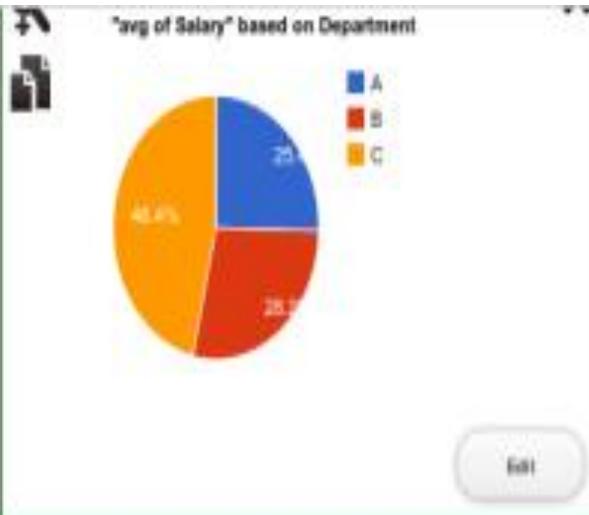
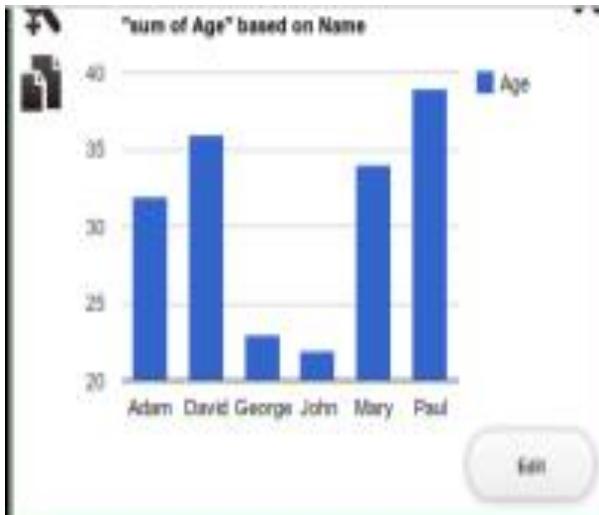


Contract Type

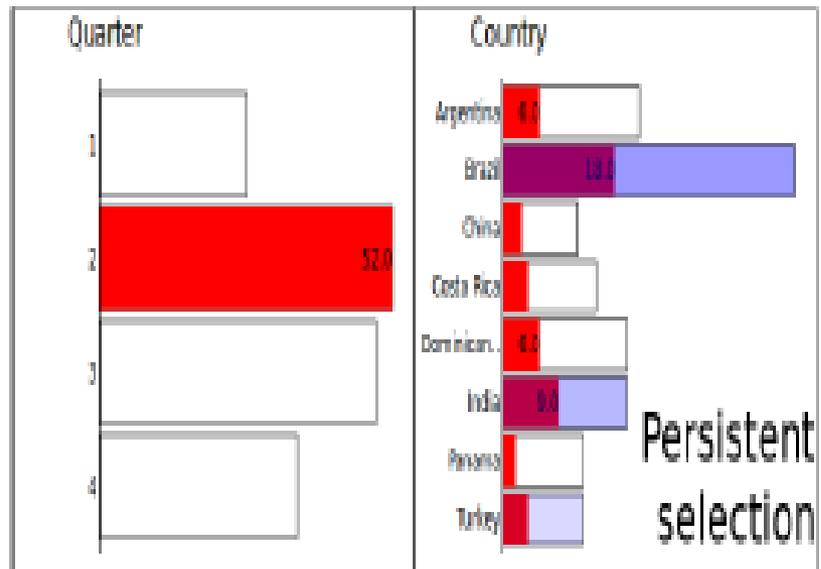
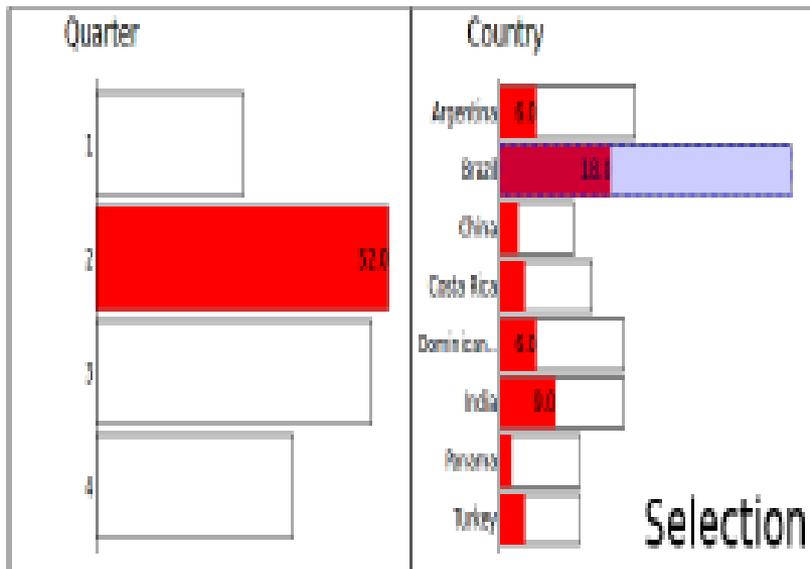
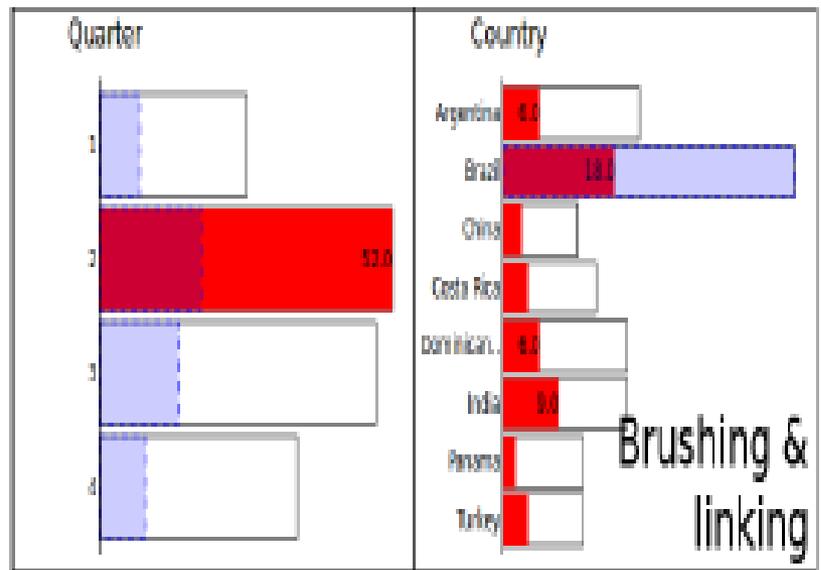
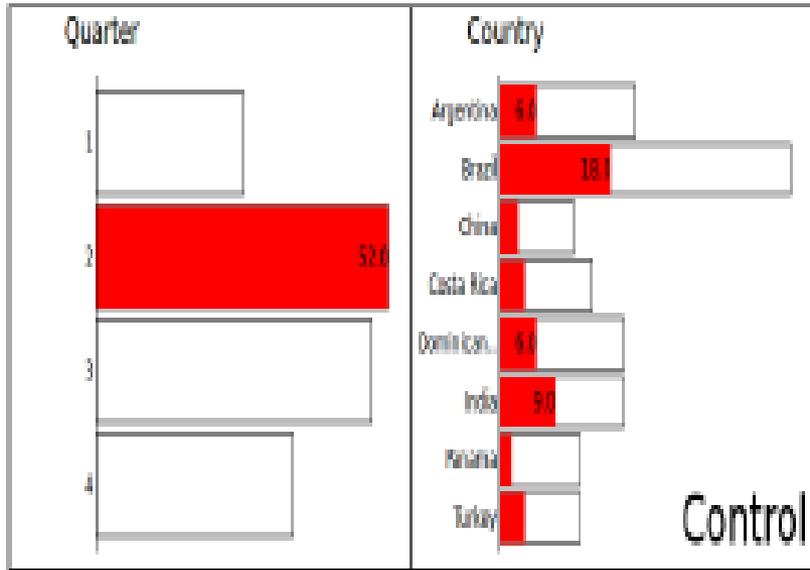


We aim to answer the following research questions:

1. Can an individual gain awareness of a remote collaborator's activities by viewing a representation of their brushing actions? and
2. What visual representation of brushing actions will maximize awareness while minimizing interference with individual work?



Here's compared three different ways a collaborator's actions can be visualized: brushing & linking, selection, and persistent selection



Tasks of the experiment

1. Primary task (data analysis)

In the main phase of the study, the following six dimensions using bar charts :

1. Year of export;
2. Quarter of export;
3. Destination of the export (the country);
4. Whether or not the contract was brokered;
5. Decision authority that was responsible for approving or declining the contract; and
6. Type of the contract (short-, medium-, or long-term)

2. Secondary task (awareness)

- identical screen
- same data
- similar questions

Visualization Conditions

three different visualization techniques :

1. Brushing & linking
2. Selection
3. Persistent selection

Hypotheses

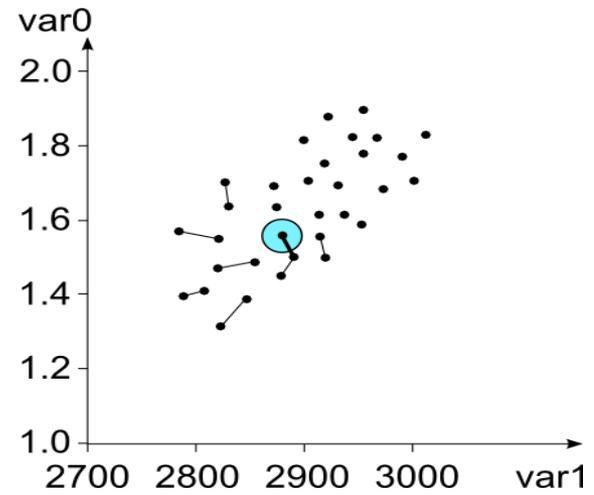
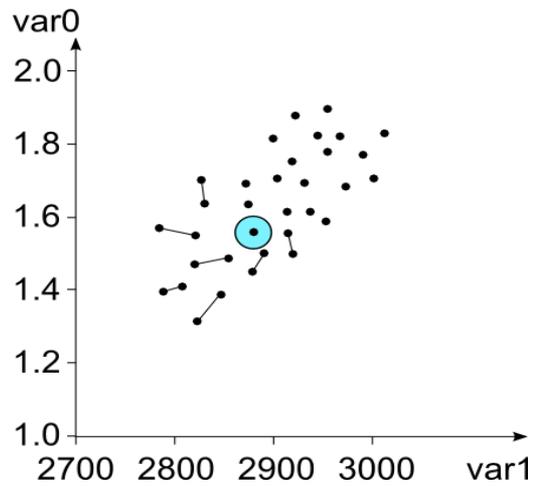
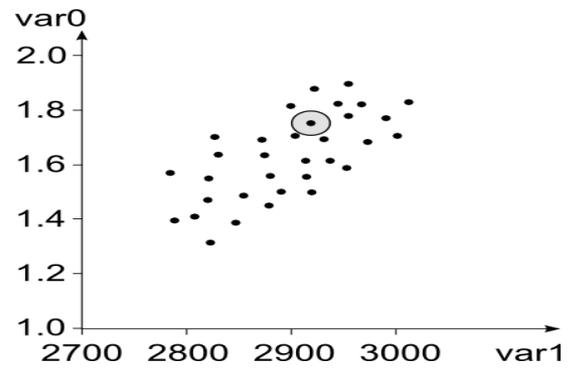
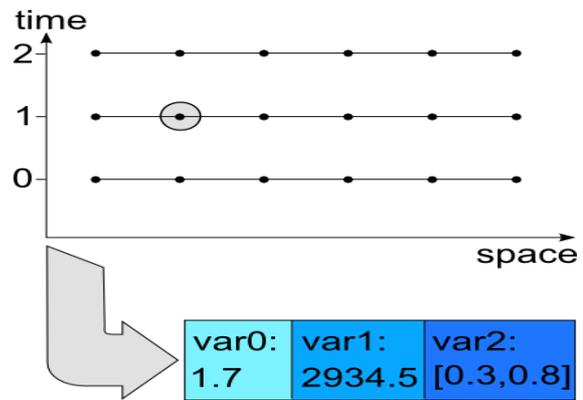
1. All visualization techniques will be better than chance with respect to guessing the common questions (secondary task)
2. For completion time on the primary task, the order will be: control < selection and persistent selection < brushing & linking
3. There will be no differences in the number of errors made in the primary task in visualization groups compared to the control group.
4. Brushing & linking will be rated as more distracting on the primary task than selection and persistent selection.

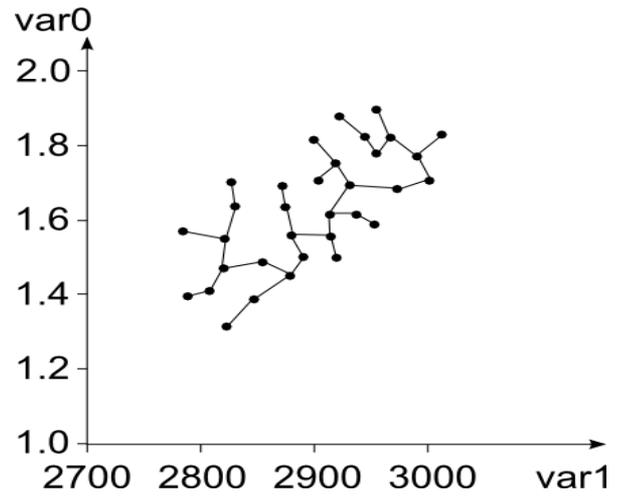
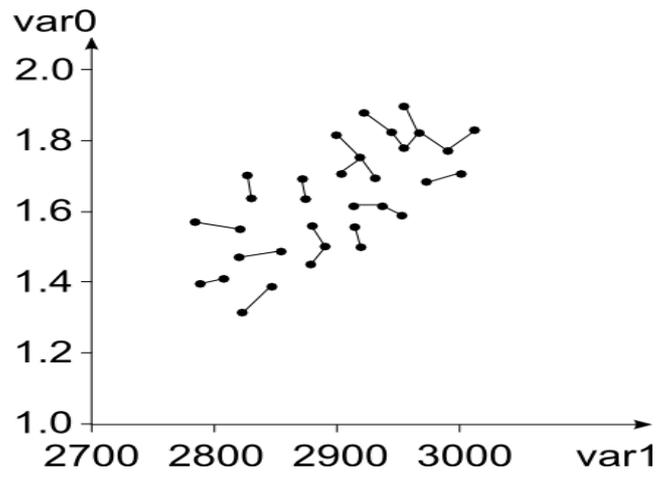
CONCLUSION

this experiment :

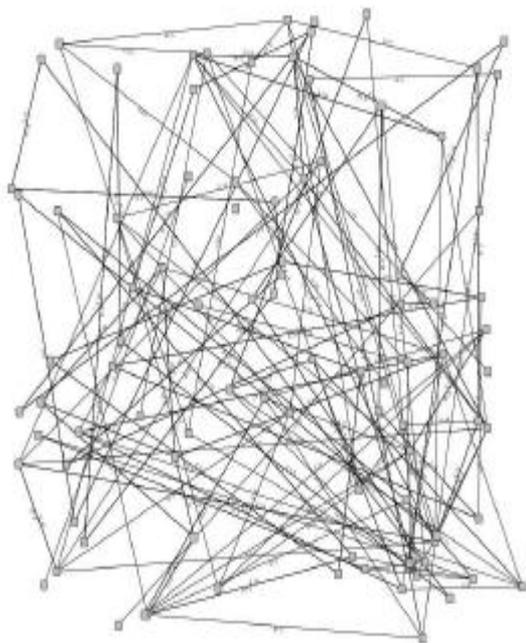
- compared three methods of visualizing
- measured which design provides the best level of awareness
- demonstrates that people can gain awareness of a collaborator's activities

Brushing of Attribute Clouds for the Visualization of Multivariate Data





Layout in 2D

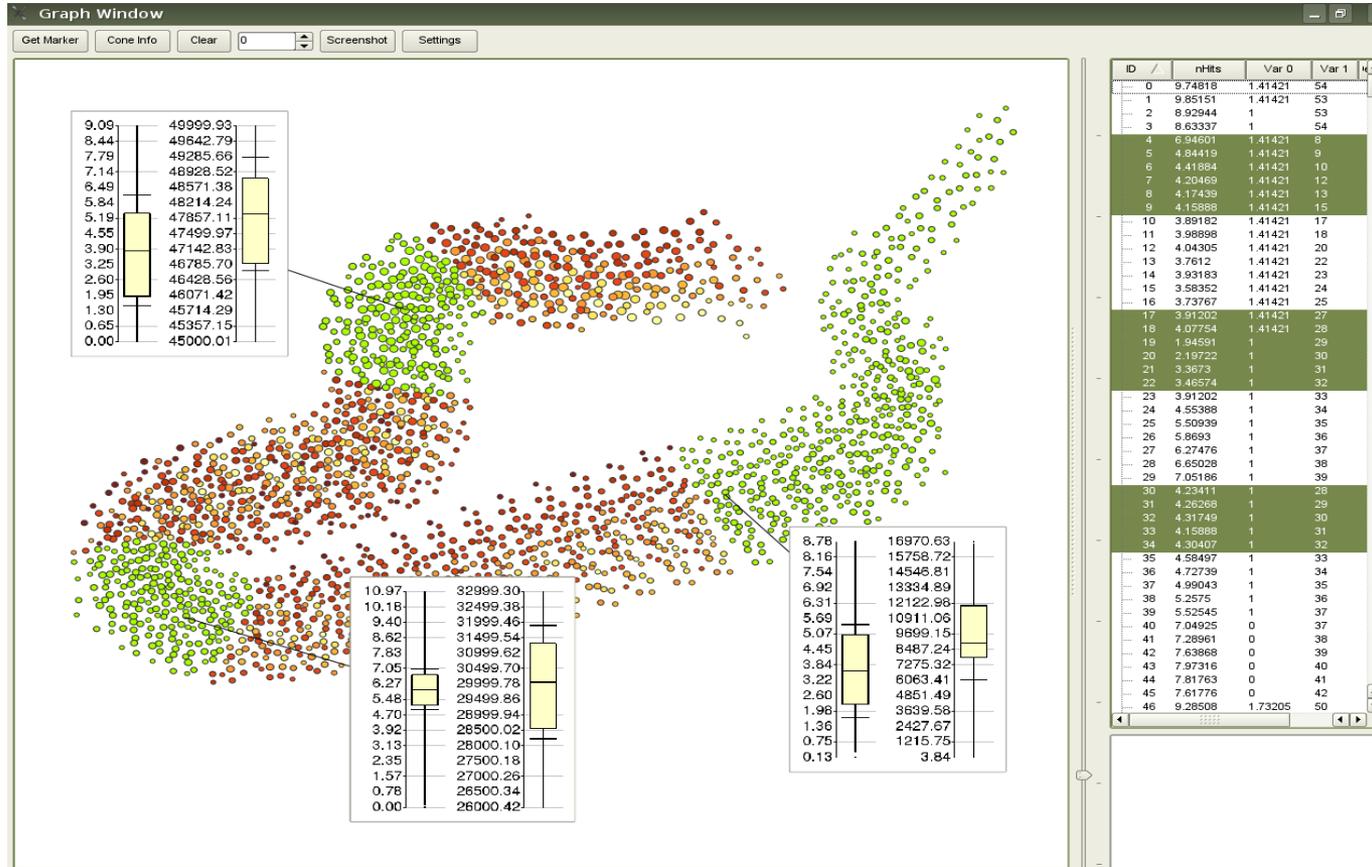


(a) no layout



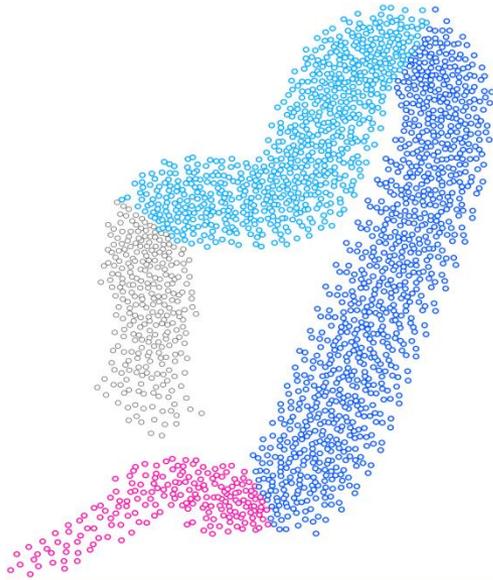
(b) layout

Discretization

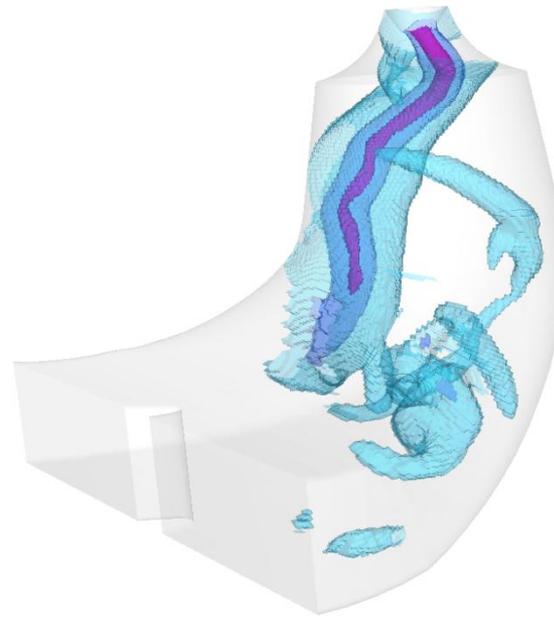


Brushing

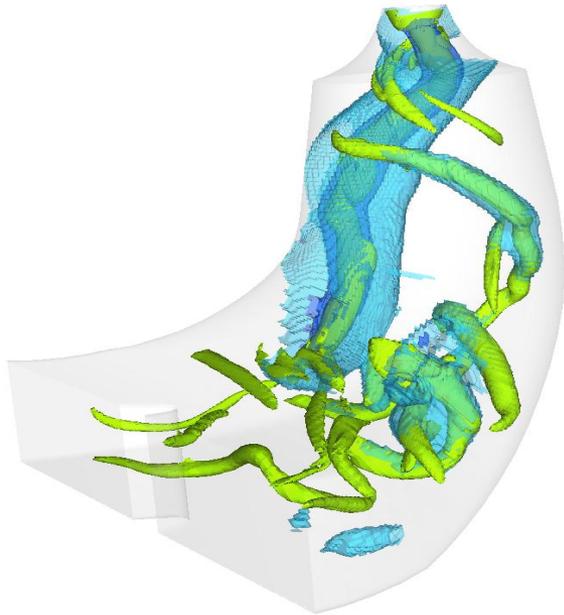
Brushing



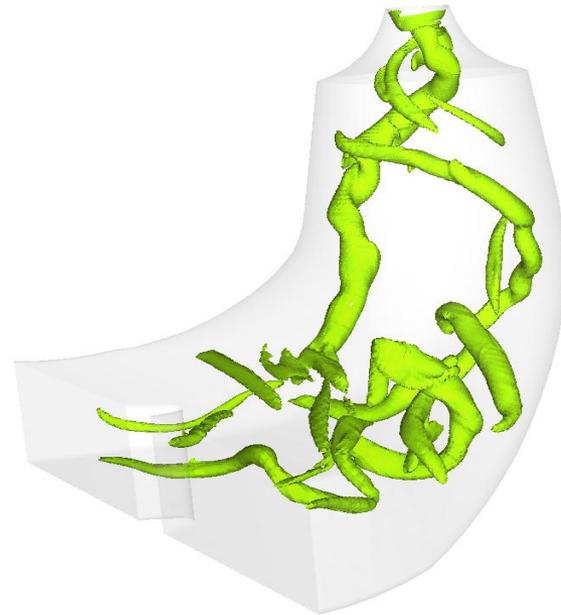
Brushed positions



Brushed positions and I2



$I_2 < \text{?} 3000$



CONCLUSION

They proposed brushing of attribute clouds. This technique transforms multivariate data to 2D resulting in a planar point cloud, called attribute cloud.

The method builds upon solid and well established techniques such as scatterplots, linked views and brushing.