Multi-touch Manipulation for Data Visualization

Multi-touch devices are becoming more common and are increasingly used for complex problem solving tasks. These tasks are often accompanied by the interactive analysis and investigation of data using graphical data representations such as network visualizations, charts and diagrams, or different types of data plots. Interaction with these data representations has been shown to incorporate different types of actions such as:

• Select: mark something as interesting

• Explore: show me something else

• Reconfigure: show me a different arrangement

• Encode: show me a different representation

• Abstract/Elaborate: show me more or less detail

• Filter: show me something conditionally

• Connect: show me related items

The goal of this project is to find a gesture set which allows the manipulation of data using these actions across different types of data representations.

This project has several sub-goals:

- Develop a set of multi-touch gestures which can be commonly applied to different types of data representations
- Implement recognition for these gestures
- Implement at least four different types of data representations and show that your gesture set works with actions above across all representations

Project requirements:

- The project should be implemented using C# and work on a multi-touch tabletop display in our lab
- The student should be comfortable communicating in English
- Duration 3- 6 months