

Information Visualization – Exercises

Due date:

Please hand in the solution for this exercise no later than June 16st, 8:00.

Solutions by e-mail to nestler@in.tum.de, huberma@in.tum.de and schlegem@in.tum.de are acceptable.

Exercise 1 (H) Fisheye distortion

A fisheye lens is a very wide angle lens that shows places nearby in detail while also showing remote regions in successively less detail. In this exercise we build a visualization analog of a fisheye lens for viewing and browsing planar graphs. First read the paper of Sarkar et al. (Manojit Sarkar and Marc H. Brown, Graphical Fisheye Views of Graphs, in Proceedings of CHI'92, Human Factors in Computing Systems, p. 83-91, 1992, <http://portal.acm.org/citation.cfm?id=142763>) to get an idea how you could implement such a view using solely geometric transformations.

Fortunately fisheye distortions are already included in the flare toolkit. Use the class `FisheyeDistortion` (from the package `prefuse.action.distortion`) for visualizing a planar graph with at least 30 nodes. Implement three different fisheye distortions:

- One dimensional fisheye distortion along the x axis
- One dimensional fisheye distortion along the y axis
- Two dimensional fisheye distortion

Exercise 2 (H) Bifocal distortion

When using a bifocal distortion of space the focus region of space is magnified and the rest of the space is uniformly demagnified. The affect is akin to passing a magnifying glass over the data. Again, first read a paper on this technique to get an idea of the underlying concepts (MY. K. Leung and M. D. Apperley, A Review and Taxonomy of Distortion-Oriented Presentation Techniques, in Transactions of Computer-Human Interaction (TOCHI), 1(2): 126-160 (1994), <http://portal.acm.org/citation.cfm?id=180173>).

Fortunately bifocal distortions are included in the flare toolkit as well. Use the class `BifocalDistortion` (from the `prefuse.action.distortion`) for visualizing the graph from exercise 1. Implement three different bifocal distortions:

- One dimensional bifocal distortion along the x axis
- One dimensional bifocal distortion along the y axis
- Two dimensional bifocal distortion