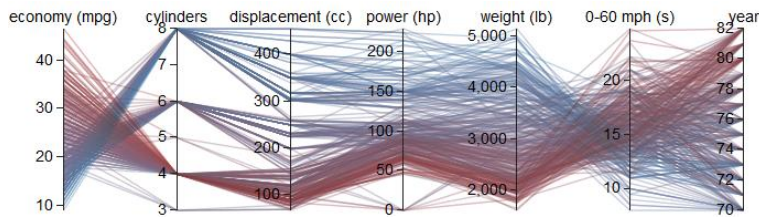


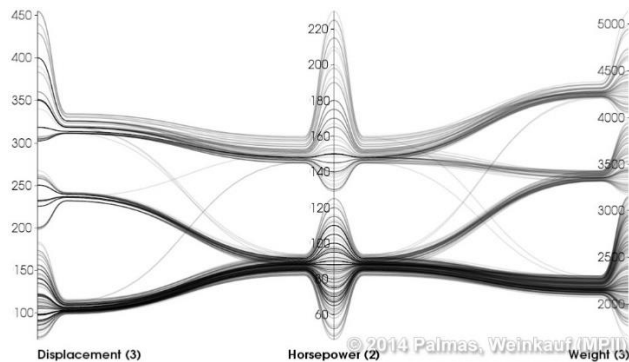
Master thesis topic

Topic: Implement the edge bundling technique for parallel coordinates

Parallel coordinates is a data visualization technique designed for multivariate data. To display the data for n-dimensional space, the technique utilizes n-parallel lines, usually vertical. Each point of the data is represented as a polyline running through the lines. Parallel coordinates are illustrated on the Figure below.



The problem using parallel coordinates on big data is that big number of polylines are overlapped and makes a visual clutter, which makes parallel coordinates hard-to-read. Therefore, various modification of parallel coordinates were developed. One of the modifications is parallel with edge bundling (see Figure below).



The method merges similar polylines into bundles, which makes the histogram, look much clearer without losing displayed information.

Your task will be to develop and implement parallel coordinates with edge bundling method and do an evaluation on the real data gained from CT images.

Starting literature:

- <http://www.vtk.org>
- H. Zhou, Panpan Xu, X. Yuan and H. Qu, Edge bundling in information visualization, in *Tsinghua Science and Technology*, vol. 18, no. 2, pp. 145-156, April 2013. doi: 10.1109/TST.2013.6509098
- David Selassie, Brandon Heller, Jeffrey Heer: Divided Edge Bundling for Directional Network Data. *IEEE Trans. Visualization & Comp. Graphics (Proc. InfoVis)*, 2011
<http://vis.stanford.edu/papers/divided-edge-bundling>

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