DATA.STAT.770 Dimensionality Reduction and Visualization, Spring 2021, Exercise set 11

Part G: Neighbor Embedding

Problem G1: Stochastic Neighbor Embedding and t-distributed Stochastic Neighbor Embedding

The dimensionality reduction toolbox used in Parts E and F also implements the methods Stochastic Neighbor Embedding (SNE) and t-distributed Stochastic Neighbor Embedding (t-SNE).

Use the toolbox to create SNE and t-SNE based visualizations of the swiss roll and half-sphere data sets (from problem E5), and the Iris data set (from problem F1). Compare the SNE and t-SNE results and discuss the differences.

In R, consider the packages 'tsne' or 'dimRed' or the project at `https://github.com/jlmelville/sneer` which also seems to implement the Neighbor Retrieval Visualizer. If you are unable to use the basic Stochastic Neighbor Embedding, leave it out.