

Problem G2: Neighbor Retrieval Visualizer

Problem G3: Precision and Recall versus Distance Preservation

1:

The Orange-peel map achieves good precision but not good recall. It doesn't preserve all the distance whereas squashed flat sphere preserves all the distances that are small. Precision and recall measures are same to preserve small original distances and large original distances on display. Precision and recall are for preservation of small projected distances and small original distances.

2:

The cost function is based on the short distances on the projection spaces, however it preserves the small original distances. Preservation of small distances should have the cost function like given as follows:

$$\sigma r = \sigma r = \sum_{i < j} (d(x_i, x_j) - d(y_i, y_j))^2 F(d(x_i, x_j), \lambda x)$$