

This software implements LDG dimensionality reduction for transfer learning as described in section 5 of the paper, “Dimensionality reduction by local discriminative Gaussians” by Nathan Parrish and Maya R. Gupta.

Additionally, the ‘data’ folder contains the dataset of MNIST and USPS text images that were used in this paper.

Before you run the experiments, you will need to compile the function ‘DiscMeansVars.cc’ for your machine. This can be done by running the command: `mex DiscMeansVars.cc` from your MATLAB command line.

The script titled ‘example’ runs a transfer learning experiment that uses the USPS data as the target domain and MNIST data as the source domain. In addition to transfer LDG, three other dimensionality reduction techniques are performed

- 1) Pooled PCA – this approach pools the source and target domain training data and performs PCA
- 2) Target PCA – this approach extracts the PCA components using only the target domain training data
- 3) Pooled LDA – this approach extracts LDA components using the pooled source and target domain training data

If everything runs properly, you should end up with a figure that looks something like this:

