

when you load 'MINST\_data.mat' into matlab workspace, there are four matrices,

```
'train_samples'      4000x784
'train_samples_labels' 4000x1
'test_samples'       1000x784
'test_labels'        1000x1
```

Each row in 'train\_samples' or 'test\_samples' is a sample of a handwritten digit. 'train\_samples\_labels' and 'test\_labels' gives corresponding groundtruth labels, '0' to '9'. Note the number of training samples for each class is around 400, but not exactly 400.

You can display the i-th image by following matlab command:

```
imagesc(reshape(train_samples(i,:),[28,28]));
```

A baseline DAGSVM achieves 95% accuracy with a 6-degree polynomial kernel function.

Here is the confusion matrix obtained for the baseline DAGSVM. The vertical axis is for the ground truth class label, and the horizontal axis is for the estimated class label.

84	0	0	0	0	1	2	0	1	0
0	121	0	0	0	0	0	0	0	0
0	0	110	0	1	0	0	0	1	0
0	0	0	106	0	2	0	1	2	0
0	0	0	0	102	1	0	3	1	1
1	0	0	5	0	86	2	0	0	0
1	0	0	1	1	1	82	0	0	0
0	0	1	2	0	0	0	93	2	0
0	1	1	1	0	1	1	1	78	2
0	0	1	0	4	0	0	1	1	89