7-16-10

One/Few Shot Recognition

-Antonio Rodriguez

- A week of verification and revisiting Caltech101.

7-16-10

- Last Friday, achieved some very promising results on the YouTube Histogram data.

- Some example results:

Machine Learning Step (from each category)	Evaluation Step (from ML training data rather than only test data)	Accuracy
3 - Train/ 97 - Test	1-train	28.63%
97 - Train/ 3 - Test	1-train	78.60%
97 – Train/ 3 - Test	15-train	91.30%

7-16-10

- We need to determine that these results are legitimate and not a fluke or result of an error.

- Patrick has been performing cross-validation to verify some results.

- I focused my attention back on the Caltech data sets, to see if we can improve our results.

7-16-10

- First, tried running FSVD on the Caltech256 set. Then use that to transform the Caltech101 data to train/test.

- Some results:

Reduction Method	Category Train/Test Split	Evaluate Step	Accuracy
PCA	76-Train 25-Test	15 - Train	18.35%
FSVD	76-Train 25-Test	15 - Train	25.76%

7-16-10

- Decided to forgo using the Caltech256 for now and work exclusively on Caltech101.

- Some results:

Category Train/Test Split	Evaluate Step	Accuracy
91 – Train 10 – Test	1 - Train	20.18%
91 – Train 10 – Test	15 - Train	34.27%

- I feel I made a mistake in the SVD process. Also, only used 55 rows for speed.

7-16-10

- FSVD worked well with YouTube because of the high number of features compared to the low number of videos.

- Caltech has a more square distribution and fewer features than images.

- While attempting to fix this, I tried a test on caltech similar to the one we did on Youtube.

7-16-10

- ## Some results:

Machine Learning Step (from each category)	Evaluation Step	Accuracy
15 – Train/ 10 - Test	1 – Train (Pulled from Test data)	13.32%
15 – Train/ 10 - Test	1 – Train (Pulled from Train data)	25.99%
15 – Train/ 10 - Test	15 – Train (Pulled from Train data)	36.94%
15 – Train/ 10 – Test No Optimization	1 – Train (Pulled from Test data)	3.29%

7-16-10

- The argument made against those results is that having to take 15 images per category for the machine learning how to perform one-shot violates the definition of one-shot.

- Currently performing tests on pulling only 2 images for machine learning.

- Using SVD on those 202 images and using only 1 image (from the 202) to train in the evaluation step yielded 11.13% accuracy.

7-16-10

- I plan on continuing to try to improve the accuracy on the Caltech101 data set.

- I intend to try using the Caltech256 data again.

- I am attempting to resolve the issues with the FSVD on more square feature matrices.