7-9-10

One Shot Recognition – YouTube Edition
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I apologize in advance for the incoming wall of text.
7-9-10

- YouTube data: 11 Categories, 100 videos each
- First, we used 5 categories to train the algorithm, the remaining 6 to test.
- Discovered that using our PCA code, the run time was approx. 4 hours before optimization even started.
- It has been a week of improvement.
7-9-10

- Tried (Spencer's) Fast SVD for dimension reduction
- Very quick run time.
- The average accuracy with 5 training categories, 6 testing was around 31%
- Tried other combinations of 1 training, 10 test, etc. But the results were not as good.
7-9-10

- Decided to try using PCA anyways on the same tests.
- Results varied: In the case of 5 training, 6 testing the results of PCA were worse.
- In other combinations, the results ranged from slightly better to slightly worse.
- This is most likely due to the randomness of the input data.
Next we switched from training over all of some categories, to training on some of all categories.

Specifically: Training on 75 videos from each category, Testing on 25.

Using 1 video from each category from the test data itself to train in the evaluation stage, the results averaged 30% using Fast SVD.
Then we tried using the built in SVDS function in matlab.

The run time was relatively quick, and at first the results were better than SVD and PCA.

However, we discovered the function used to evaluate the accuracy of the categorization was not behaving as we needed it to.
• We corrected the evaluate program and retested most of what we tried before with some videos from each class.
• The results improved.
• Surprisingly, when we retested, PCA which takes the longest performed the worst.
• The Fast SVD seems to be performing the best currently.
7-9-10

• We switched to using an video(s) from the training set to train in our evaluation function, since our method is optimized for our training set.

• Results were consistently above 50% accuracy with SVDS for 1-training video.

• Using only the testing data, the accuracy was roughly 15% lower.

• Patrick will go into more detail about specific results
7-9-10

- What to do next:
- Cross Validate our results for the YouTube set.
- Revisit the Caltech101 with our current knowledge and try to improve the results: Try Fast SVD/SVDS
- Redo old tests with the correct evaluation function.