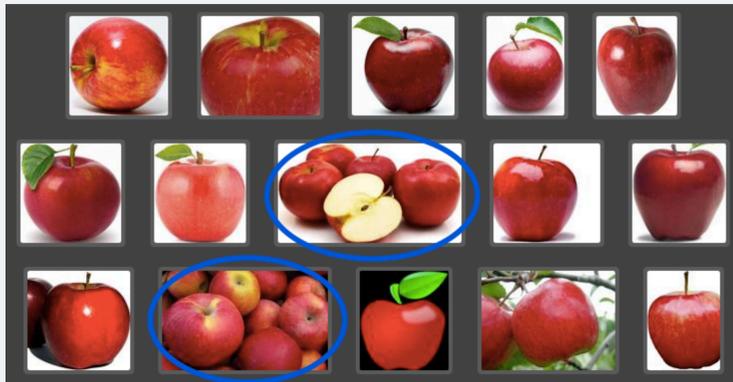


Problem

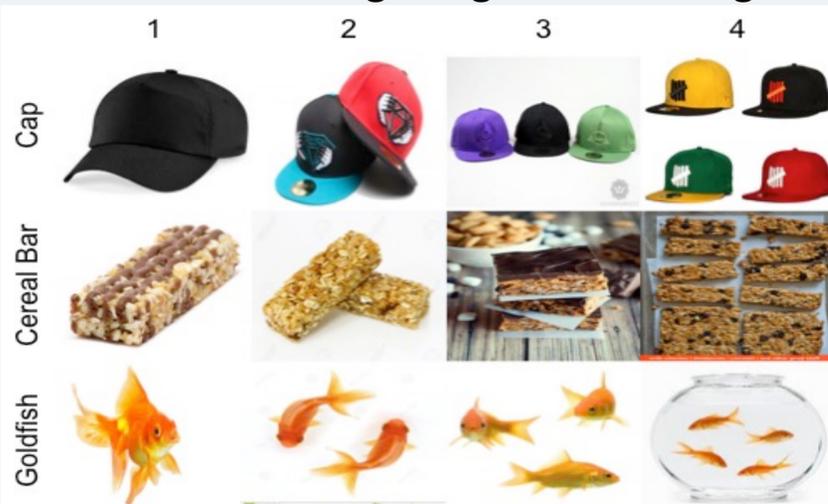
- During object recognition of Google images, clusters of similar features are created



- In clusters, there exists no differentiation between single and multiple objects
- Multiple objects images do not contribute to cluster, either remove or extract single

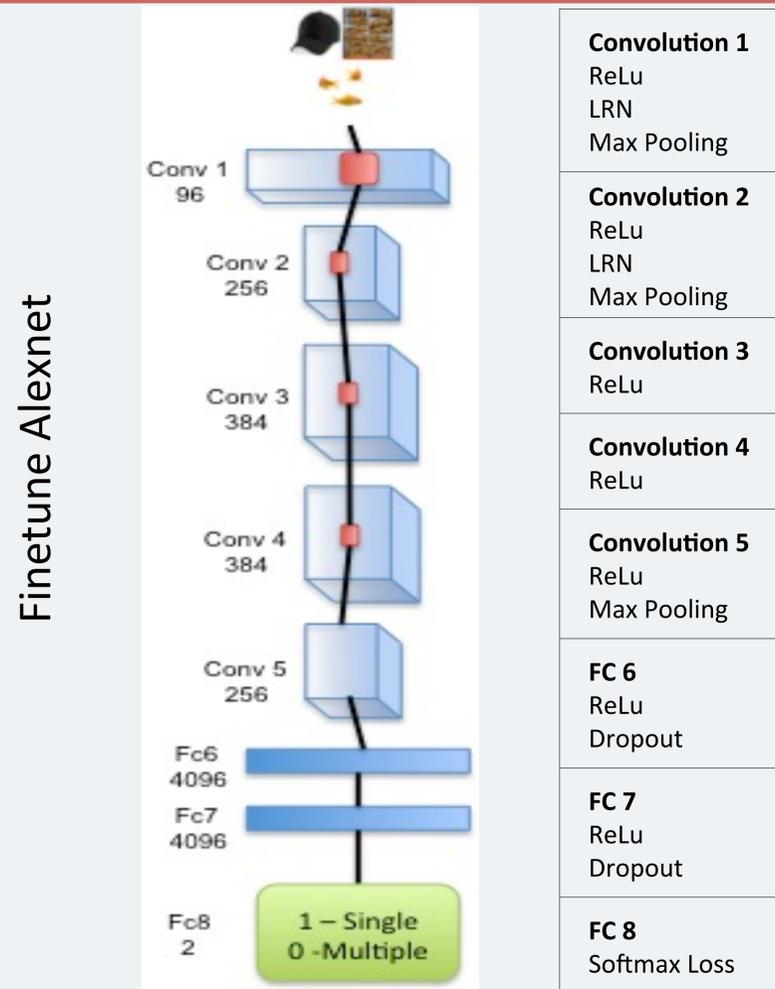
Data Collection

- Learn concept of 1 vs 2+ with Caffe using images of 1 object and 2,3,4 objects
- 2.5 million training images from Google



- Binary classification: 0/1

Architecture



Rankings

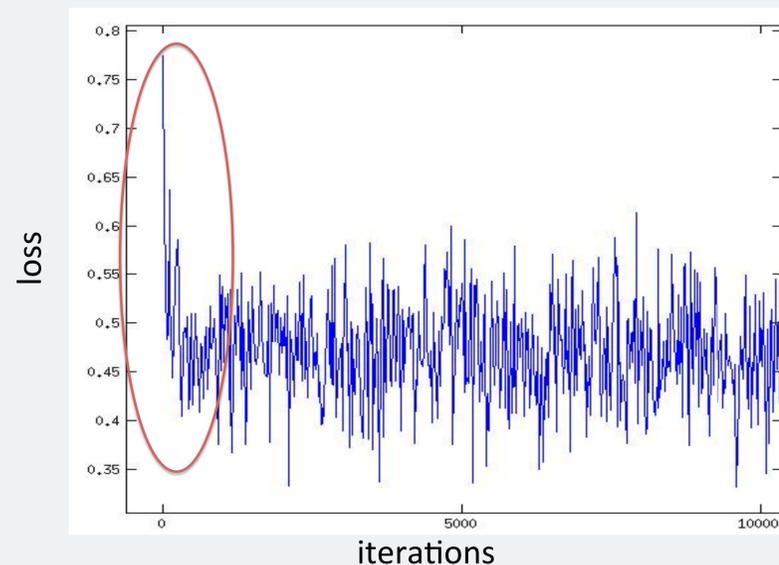
- Probability ranking for class 1 (1 object)



- Probability ranking of class 0 (2+ objects)



Softmax Loss



Future Work

- Create a pipeline to improve weakly supervised learning
- Retrieve proposals from learned image clusters
- Run proposals through model for counting classification
- Cluster proposals by extracting similar features
- Original images discarded