Semi-supervised training of CNNs

Student: Kevin Duarte
Mentors: Dr. Boqing Gong
Yang Zhang

What I have accomplished

- I have successfully implemented semi-supervised CNN
- I tested the semi-supervised classifier against supervised CNNs trained with varying amounts of data

Preliminary Results

- Using the auto-encoder's weights, we trained a CNN on 10,000 labeled images
- We also trained a randomly initialized CNN on the same 10,000 labeled images, as well as one trained on 50,000 labeled images

CNN	Accuracy
Semi-supervised, trained on 10,000 images	55.01%
Randomly initialized, trained on 10,000 images	47.09%
Randomly initialized, trained on 50,000 images	53.63%

Coming weeks

- I plan on making a deeper auto-encoder and CNN, to see is more state of the art results can be obtained
- Instead of just using a naive auto-encoder, which I have now, I plan on implementing a what-where auto-encoder to obtain better results