Gun Detector

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Outline:

- Detect guns in a photo

1. Read the papers in sample project 3 to get a general idea about how to detect objects in a picture.
2. Detecting guns.
3. Based on the network architecture listed in the paper, to determine if we can improve our program's performance.
4. Using SIFT/SURF to detect key feature
5. Use open cv to draw boxes around the guns detected in the image
6. Experiment with different approaches using both grayscale and colour information, compare and contrast.
7. Experiment with Harr Cascades and HOG feature extraction
8. Find out more papers about object detection using deep learning and implement them

- Classification of guns for a better result

1. 2 classes, Rifle and Pistol
2. Find dataset of rifle and pistol from imagenet, split it in training and testing set.
3. Train the gun detection model using the dataset.

Possible Difficulties:

1. Remove background of an input image.
2. Match input image gun features to gun feature in existing model.
3. Build neural network using Pytorch or Tensorflow.