

Object Detection in Videos

Jacob Munoz, Avery Olson, Akash Gaonkar



Can we teach machines to
understand what they see?

Can those machines show
people useful information?

Prior Work

- In March of 2017, Google announced its new machine learning API that automatically recognizes some objects in videos and makes them searchable, meaning you can search for “cat” and it will find it in the video.
- Clarifai is a site that also offers this service for photos and video, giving a probability of items being in the picture.
- Before this, only still images could be used for picking out objects.

We are going to build object detection from our dataset, and may take it a step further, and create a specific application like detecting dangerous objects via airport security cameras.

Datasets

Open Images

(9 million images) - repository cloned by Akash

<https://github.com/openimages/dataset>

ImageNet

(14 million images)

<http://image-net.org/index>

Proposed Work

Data Mining

1. Clean data to remove infrequent classes/shorten number of classes
2. Ensure images are all the same size (rescale somehow?)
3. Merge two datasets together or pick one, merge the other later?

Machine Learning

4. Choose object detection algorithm/framework
5. Train/tweak/test using prepared data

Stretch Goals

6. Convert videos/camera into even more samples
7. Add object detection into any video we want

Tools



Python



Tensorflow

...and possibly others?

Evaluation

We plan to evaluate our results by testing a few videos, and seeing if we correctly identify objects from the video. Can this be used in a real world application such as threat detection of dangerous objects?

Thanks!
Questions?