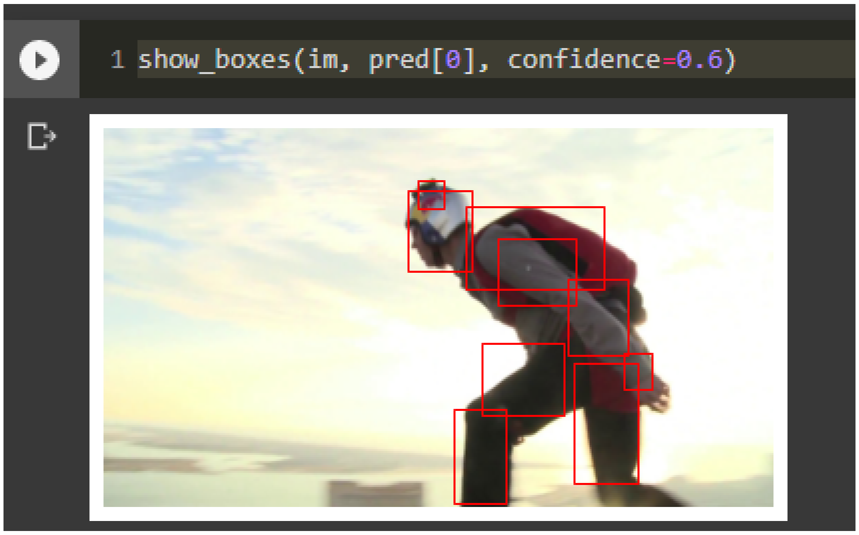
Original Milestone 2 Goals:
The GUI should be able to show a video preview of a test output and save it. The model should be modified and fine-tuned (ex. layers modified) and training in progress. Student C should be able to insert new frames or modify existing ones with the blur effect applied (using test images).

Progress:
Training of the model is underway. One successful training run was able to produce the following result:



```
show_boxes(im, pred[0], confidence=0.6)
```

All training work is found in “Model.ipynb” and the current model is saved as “model1.pt”. Training code was primarily PyTorch reference code so custom training code will need to be written for the future.

Code to rotate certain portions of images is finished. Jupyter file can be found in the image manipulation folder.

Code to add frames in between a video is finished. Jupyter file can be found in the image manipulation folder.

Changes:
N/A

Challenges/Bottlenecks:
Training is extremely slow. Currently batching does not work due to different numbers of objects detected between images. A potential fix is to pad the tensors with zeros and ignore the padding in a custom train function. Difficult to find proper sources on integrating PyTorch models specifically into backend code. A potential fix is to convert PyTorch to Keras or Tensorflow model in order to integrate.

Team Member Progress:

Henry:
Got resize transformation to work with the dataset. Trained the model and got the results seen above. Will proceed to do more training (write more training code and do more training runs) and do more finetuning.

William:
Got rotating images and adding frames in between video code working. Will try to simplify them into one function so that it is easier to use.

Nancy:
Will look into how to do object *tracking* with the SORT algorithm: https://github.com/abewley/sort

Ivan:
Will plan to host on Heroku instead Google Cloud. Will also plan to begin implementing model running code into Django and begin making the website look nicer.