Journal Report 7
10/14/19-10/25/19
Jack Bellamy
Computer Systems Research Lab
Period 5, White

Daily Log

Friday October 18

Began writing a script to combine image sets together and edit all of the annotation text files to match with one overarching class file, making it easier to start running full-scale training commands.

Monday October 21

Finished writing the image set combination program after running into some errors with the annotation files I had created over the summer; some of the files got mixed up and one of the image sets somehow had 3 different class files, other sets also had images with class identifiers that didn't match up with their respective class files. Manual editing was required in some of these cases, and one image set was temporarily removed from the training group to be fixed later.

Wednesday October 23

Adjusted my GUI code to better handle instances of multiple objects appearing in a single picture. Previously this would error out the program, but I rewrote it so that it now draws boxes around all objects outlined by the associated text file and labels the boxes with numbers; the numbers are then paired with the correct classes when displayed by the GUI.

Friday October 25

Added additional protection from failure cases in the GUI and sorting scripts. Fixed an error where the GUI would crash if no file or directory was selected when opening images to view or switching directories. Began working on phasing out the "switch directories" button as it won't be in the final GUI and makes viewing bounding boxes more complicated. Attempted to run darknet training methods on compiled image set but ran into errors with how my sort script wrote the training instructions.

Timeline

Date	Goal	Met
October 14	Research packaging whole system of GUI and Darknet together for easy use, compile all image sets together to begin training for full neural net	Yes, image sets were compiled together after some issues
October 21	Work on improving accuracy of weighted neural net, add more security for failure cases in the GUI program	Partially met, more security for failure cases was added to both the GUI and sorting programs, but had issues getting the darknet training to work on the image sets
October 28	Start training Darknet neural network on compiled image sets, work on improving accuracy of weights	
November 4	Begin modifying GUI to resemble final product	

Reflection

My work over the last two weeks focused mainly around getting full-scale training up and running with all of the annotated images I had. Running into issues with the annotation work I did over the summer was unexpected as I thought I had been consistent about keeping image sets organized together, but not entirely implausible. I might want to more slowly scale up testing of code that handles large-scale file processing in the future, as I only tested the collapsing script on two directories beforehand as opposed to the twelve or so that I was trying to get it working on for a couple days with. Fixing some of the errors I consistently ran into when using the GUI was a good step towards the final version of the product, and also helped with debugging in general through being more robust with handling my errors. Attached below is part of my fileset collapsing method that I wrote this week.

```
def collapse_files(top_dir):
        file_sets = list(os.walk(top_dir))
    pic_sets = []
    for i in file_sets:
            if i[1] is empty:
                    pic_sets.append(i)
    base_pairs = {"deer":0,"hog":1,"other":2}
    for i in pic_sets:
            curr_pairs = {}
            if "classes.txt" in i[2]:
                    c_file = open("classes.txt","r")
                    l = c_file.readlines()
                    for a in range(len(l)):
                            curr_pairs[a]=l[a]
            for f in i[2]:
                    if f is not "classes.txt":
                            if ".txt" in f:
                                    a_file = open(f,"r")
                                    for a in readlines(a_file):
                                            a=base_pairs[curr_pairs[a[0]]]+a[1:]
    for i in pic_sets:
            for a in i[2]:
                    copyfile(a,top_dir+a)
```