

Daily Log

Monday October 28

Fixed issues with processing images with multiple annotated objects; this may have also contributed to the training not being fully functional last week.

Wednesday October 30

Fixed the training set construction methods, main issue was with where the image files were described to be in relation to where training files actually were. Rewrote parts of both the train and test set creation methods and the overall trainer instructions to make more sense with what directories they were being called on.

Friday November 1

Used updated training file methods to make appropriate training data for the darknet system. Attempted testing but darknet ended up crashing out after running out of memory, but was able to fix them after decreasing the batch size and increasing subdivision size. May readjust batch size in the future if I can somehow speed up other parts of my current training system.

Wednesday November 6

Worked on and gave class presentation on project. Also did additional research concerning how to properly configure the darknet environment to work on windows; may end up moving my project work there as having to run everything through a virtual machine is not fully desirable.

Friday November 8

Began training of neural network with available images and annotations (approximately 1300 images). Training was notably slow to start out, with batches taking around 8 minutes to process, but eventually sped up around the 10th iteration to around 3 minutes per batch. Training was stopped at 100 iterations, totaling about 10 hours of training, and the current weights for the neural net were stored in a backup folder to continue training on later. Note that this training was run on both day and night sets combined, will run training on the separated sets after completing training on the combined version and will compare detection accuracy. I also plan to add back in the image sets with faulty annotations after fixing them by hand.

Timeline

Date	Goal	Met
October 28	Start training Darknet neural network on compiled image sets, work on improving accuracy of weights	Was met, though only after some trouble with supplemental programs for organization
November 4	Begin modifying GUI to resemble final product	Was not able to meet this goal, may push back as getting the neural net working is higher priority
November 11	Continue and finish training of full neural net, start training of separated sets, fix broken image sets	
November 18	Modify GUI to resemble final product, enable image detection through GUI, work on improving accuracy of best neural network	

Reflection

The main priority these two weeks for me was getting the first set of training done for the neural network. I decided on just having it train on all of the images together for a first go because it would be less complicated overall, as I do need to modify the day/night splitting program to more evenly mesh with the other helper methods I have been using so far, and would probably end up requiring extra debug time in order to do so. It also will provide a helpful benchmark for comparison to see if splitting the image sets by time of day is actually more accurate in terms of image detection. Pushing back the GUI changes is something that I thought would be necessary given how having object detection working well is the primary goal of the project, and ease of use coming being a secondary goal. One final issue I am looking into right now is any potential ways to speed up training given my current setup; this could just simply be adjusting some of the initial values for the config file, or could end up being something more complex.