

## Week 2 Summary

This week I made several changes to my model. First, I changed the overall structure of the CNN by adding additional convolutional layers and another MaxPooling layer. By doing so, I hoped to preserve the spatial information and reduce the amount of information that needed to be computed to improve training time. Furthermore, I added two dropout layers so that the model would not overfit the data. Next, I changed the dataset that I used since the original dataset was neither documented well nor did it have additional classes. Thus, I used CIFAR10, which has 60000 32x32 images with 10 separate classes.

During this week, I trained 3 models: cats vs dogs, birds vs frogs, and a combined model with all four animals. The cats vs dogs and birds vs frogs model took approximately 1 hour and 41 minutes to train, whereas the combined model took 3 hours and 25 minutes to train on an Intel Core i7-8550U CPU. The individual models performed relatively well in terms of accuracy: cats vs dogs – 0.8285, birds vs frogs – 0.9210. However, the combined model decreased in accuracy 0.7968. This indicates that the CNN may not be capable of generalizing the data well. Similar to last week, I performed image degradation with gaussian blur for each model and plotted it against the accuracy. However, this week the plots did not contain the hump we observed last week, indicating that the images may have been filtered beforehand.

