**CSC 307 Fall 2020**

**Project 4 Transfer Learning (30 points + 10 points extra credit)**

**Due: 11/8 Sun 11:59 pm**

You have learned CNN and Transfer Learning from the class. Now you try these to do these with your own hands. (1) and (4) are required and 10 points each. You can choose one out from (2) and (3). You will receive extra 10 points if you complete all 4 sections.

1. Cats-and-dogs: Create folders for train, validation and test. Run the code as given as a part of project 4 package. You will need to change the Google drive to link to your personal drive.

Currently, the accuracy of the test data set is 92.5%. Please try to do various things such as increasing Train data set or validation or trying regularizations to increase the test data set accuracy to reach 95%. Please record what you have tried and what works better and what works worse.

1. Extend the 2 class to 3 classes such as Cat/Dog/Panda or Cat/Dog/Wolf. The given code (cats=dogs-wolves) test set accuracy is 92.4%. Please try various things to increase the accuracy to reach 95%. Same with (1), record what you have tried with screen captures.
2. Try to work with Flog embryo mutant and control data set. This also has 92% accuracy from the test set on the given code. Try to increase the accuracy.
3. Make your own data set. You may use from Kaggle or other data set repository. Create your own data set for 2 or 3 classes and run the process like (1)-(3). Write what you have learned from doing each part (1)-(4), especially while creating your own data set and doing the whole process again.