

SEIS 764 Artificial Intelligence
Assignment 5
Due: midnight 4/2/22 on Canvas

Individual effort

In this assignment, you will get to do Transfer Learning for classifying a [dataset of roses and tulips](#). From your code, you can directly reference the dataset file which is saved in my Google Drive. The dataset folder contains two directories for the two kinds of flowers with 300 images in each directory. That is, you have 300 rose images and 300 tulips images. The file ID for accessing the zip file from your code is 1sajk-SXeemD-0JXDoTMezv3hlvoHUi4v

- 1) To get started in your code you would first need to create the appropriate directory structure for using Image Data Generator. For each class, you will use 200 images for training and the remaining 100 for testing.
- 2) Since the images will be of varying sizes, specify an image size of 150 x 150 for all the models.
- 3) [VGG16](#):
 - Model 1: Perform Transfer Learning with Augmentation
 - Model 2: Perform Transfer Learning without Augmentation
- 4) [Inception v3](#):
 - Model 3: Perform Transfer Learning with Augmentation
 - Model 4: Perform Transfer Learning without Augmentation
- 5) Explain the results you got on all the models.

Submission:

- Each of the above parts should have a clear heading in your notebook.
- Your code should be well commented and easy to read (either with text cells or comments in code cell).
- Make sure each of the cells have been run with the output shown right below. Now, export the notebook as .html file.
- Submit the **.html** file and **.ipynb** notebook on Canvas.

Note: You will lose points if the notebook is not structured properly or if all the cells are not already run before converting to HTML.