

## Portfolio Assignment: Image Classification

For this assignment, you may work alone or with one other person.

### Objectives:

- Gain experience with Keras
- Gain experience with image classification
- Gain experience with deep learning model variations and embeddings

### Turn in:

- This program should be created in a notebook (Jupyter, Google, or Kaggle)
- Print to pdf and upload your pdf to eLearning and your Portfolio

### Instructions:

1. Go to Kaggle.com. Find an image classification data set that interests you. Divide into train/test. Create a graph showing the distribution of the target classes. Describe the data set and what the model should be able to predict.
2. Create a sequential model and evaluate on the test data
3. Try a different architectures like RNN, CNN, etc and evaluate on the test data
4. Try a pretrained model and transfer learning, read more here:  
[https://www.tensorflow.org/tutorials/images/transfer\\_learning](https://www.tensorflow.org/tutorials/images/transfer_learning)
5. Write up your analysis of the performance of various approaches

### Grading Rubric:

- Each part is worth 0 to 20 points
- Your grade is not determined by the accuracy achieved, but by how much work and thought you put into it

This assignment will be present to the class during the last week of class

Caution: All course work is run through plagiarism detection software comparing students' work as well as work from previous semesters and other sources.