**Course:** Data Science Practicum – MSDS 692

**Name:** Francesca Beller

**Week:** 4

**Project Title:** Python Classification of NFL Plays Using *Keras*

**Project Summary:** The purpose of this project will be to create a supervised machine learning model that will be able to take in video input of NFL plays and classify them as either a pass or a run.  The model will be trained using input videos of pass and run plays scraped from the web. A mapping file will be manually created to assign binary classification to the individual frames of each video play, mapping the frame to either a 0 for run or a 1 for pass.

**Milestones:**

Researching the problem - DONE

Obtaining the data – DONE

Splitting videos into frames - DONE

Creating mapping CSV – DONE

Image mapping in Python - DONE

Image pre-processing - DONE

Model Training - DONE

Model Building - DONE

Model Evaluation

Model Re-tuning

Model Evaluation (continued)

Presentation Preparation

**Proposed to Do from Last Week:** Last week’s focus was on reading in the *mapping.csv* file to create tags for the video image frames to train the model. The image frames were then pre-processed to prepare for training.

**This Week’s Progress:** This week, I was able to build, compile, and train the initial model, as well as fit it to a validation set created from the original training video set. I was also able to pull in three pass play and three run play videos from the web to use as a test data set.

**Issues and Discussion:** So far, there have been no major issues that have occurred.

**To Do:** I plan to create the first set of predictions for the test videos and evaluate the initial model. From there, I will determine what further tuning and training needs to be performed based on initial model accuracy.

**GitHub Repository:** https://github.com/francescabeller/MSDS-692-Practicum