DATA622 Final Project

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Image Classification of Alien vs Predator

My final project is classifying images of the popular sci-fi franchise movies Alien and Predator. I had found the data from <https://www.kaggle.com/pmigdal/alien-vs-predator-images> which contained training and validation images (694 and 200) respectively of alien and predator character images.

For this project, I decided to leverage AWS and the GPU instance types as to use keras and train a CNN model that would classify whether images were predator or alien. As this was simply a binary classification problem, I decided to start with a sequential model which is a linear stack of layers and did not want to create too much complexity.

I went and used a convolutional relu layer to start off followed by 3 more layers using relu but the last 2 were 64 output filters rather than 32. I did this so as the spatial dimensions are decreasing via max pooling, the number of filters uses should increase and is common practice in developing CNN models. Finally I added another fully connected layer with 1 node and made the activation function a sigmoid function so it could classify the image. I did this to increase the accuracy of the model slightly as at first I was getting misclassification errors when testing with a brand new image. While also setting the batch size, I've read that it is best to keep it in powers of 2.

The end result was an accuracy of around 75% and was able to classify correctly a predator image i had found on google