**CS4990 Fall 2018**

**Project Assignment 3 Mini Report**

**Wednesday, November 28, 2018**

**By Rene Dena**

The purpose of assignment 3 is to develop deep autoencoders for image segmentation. In option #1, we were asked to spate hair segmentation from face images. I began this process by first separating all the training images, training masks, and testing images simply to put them all into their own list. Note, I also initialized a null training masks list that would be utilized later. Next I took the training images and training masks and resized them for better optimization of our train model. The same was done for our testing images. Next, I defined IoU metric method for evaluation. In this case, my IoU metrics counts background as our task is actually a one class classification for each pixel. CPMP added a weight equal to the true label, but that will ignore false positive predictions in the evaluation calculation. Next, I built the U-Net model. I chose to take this path as I.) It creates a contracting path similar to an encoder, to capture context via a compact feature map and II.) It is a symmetric expanding path similar to a decoder, which allows precise localization. This in turn makes computationally efficient and gives me an end-to-end train advantage.