**FYP Weekly Report**

**Coursera Course – Deep Learning with Computer Vision**

<https://github.com/maazh/Convolutional-Neural-Networks>

I have completed the course convulutoinal Neural Networks by Andrew Ng.

The last assignment included a working implementation of:

1. Neural Style Transfer(NST) which included:
   1. Applying NST to an already pre-trained network using transfer learning(VGG16 model was used)
   2. Building the cost function, this cost function computed the distance between the actual image and the generated image aswell as the difference between the style image and the generated image.
   3. Understanding and implementing how the style matrix(also know as the Gram matrix) works and implementing it.
   4. Defining the optimized(Adam used) and minimizing the cost function using TensorFlow.

The **first three weeks** including the projects have been completed for this course. I have learned and implemented the following:

1. A working implementation of the YOLO Algorithm which includes:
   1. Evaluating object localization using “Intersection over union algorithm”
   2. Using a non max suppression algorithm to lower and correctly identify a singular bounding box for each object detected in the image.
   3. Creating testing and evaluating a model by importing pre trained weights (since learning on deep nets take time) to identify cars in the image.

The project can be found at:  
<https://github.com/maazh/Convolutional-Neural-Networks/blob/master/Autonomous%2Bdriving%2Bapplication%2B-%2BCar%2Bdetection%2B-%2Bv3.ipynb>

1. Face recognition and One-shot learning
2. Siamese Network to identify faces
3. Using gradient descent to train the weights using two approaches for identifying faces:
   1. Triplet loss function
   2. Binary Classification

**Next deliverable**: Will include a working implementation of the above-mentioned algorithms. Will also be learning Neural Style Transfer. By next week, the entire course shall be completed.