Virginia Tech Certificate Program
Term II Project
Car or Truck - Classification
100 Marks

Project Description: This project gives students an opportunity to apply some of the Neural Networks covered in class. The project will be done individually. Students are given a data set that has two directories i.e., car and truck which holds images respectively. Eighty percent of the sample data set should be used to build the model. The other 20% of the sample (hold out sample) should be used to test the model to see how well the model predicts an image as car or truck. The project must be completed using Python.

Note : **Use the Term 1 Project Template**

Description of the Data Set:

This data set contains two directories with 789 images

Car Images - 393
Truck Images - 396

Project Expectations:

1. Resize all the images.
2. Randomize the data set. Choose 80% of the sample to build the model. Reserve the other 20% to test the model.
3. Apply Data Augmentation
4. Apply minimum 2 networks like VGG-16, VGG-19, ResNet or any other.
5. Run for minimum 6 epochs
6. Choose the best model based on the results that you obtain using the 20% hold out Image data set.

Submit a Project Report: After you have accomplished the above, record your observations and submit a project report. At a minimum the project report should contain the following.

1. Description of the project
2. Description of the dataset
3. Your analyses of the data based on the Networks applied
4. Any Image augmentation that you may have done and describe the reasoning behind them
5. Describe the results of the different networks that you chose
6. Identify which model was the best and why
7. GUI Development in Python.