**CSCI/ 4303/ Computer Vision**

**Final Project**

25% of final grade

You must submit this project to pass the class and be considered for curving as promised in syllabus/class (80 A, 70 B, 60 C, 50 D).

**Group Project.**

**Title: V.00 Content Based Advertisement Retrieval based on DL/CNN**

**Due Date:**

* Several pieces will be due before the final project presentation/demo. Probably weekly to make sure you are on track.
* Final project presentation and demo will be during the Final Exams Week during our scheduled exam time

**General:**

The project will have two major parts:

1. Part-1: Design, train, and testing the DL/CNN Model; Design, create and populate the database.
2. Part-2: Running the System in Real-time

Your project **must** have the following functionalities:

* It must be GUI (TKinter is the preferred library) based:
  + Desktop based (Remember that Python Tkinter can be launched from multiple platforms)
* It must be database-driven:
  + Must organize your data using a database such as MySQL.
    - To retrieve an advertisement based on current content of video.
    - To retrieve an advertisement based on current content of an image.
    - A sample table could have (but not limited to):
      * ad-id
      * major tag for ad: for example
        + University ad, pet supplies, vitamin, car, tree trimming, horse riding, bar, swimming, etc.
        + This will be the tag to be queried based on the identified image in the video scene.
      * image/video to be displayed.
      * description (name, address, phone, web, and other related ad information)
* It must implement an image segmentation and object detection.
  + You can use pre-trained models for the segmentation of frames within video.
  + The image classification should be based on DL with CNN.
  + An image can be captured every xx frames instead of every frame. Once an image is captured, it can be segmented; you will identify the major objects present in the frame.
    - A query for an ad that has one of these objects is then displayed in a separate frame/area around the video.
      * In real life, this could take you to the merchant website.
    - An ad is displayed in a separate frame and stays there until a new one replaces it.
* Recommended (optional): The project can be managed on Git/GitHub among the members of the team.