CIS581: Computer Vision and Computational Photography
Project 1B Challenge Part
Due: October. 7, 2018 at 3:00 pm

Instructions

- This is an **individual** project. 'Individual' means each student must hand in their **own** answers, and each student must write their **own** code in the homework. It is admissible for students to collaborate in solving problems. To help you actually learn the material, what you write down must be your own work, not copied from any other individual. You **must** also list the names of students (maximum two) you collaborated with.

- You **must** submit your code online on Canvas. We recommend that you can include a README.txt file to help us execute your code correctly. Please place your **code**, **resulting images and videos** into the top level of a single folder (no subfolders please!) named `<Pennkey>_Project1B.zip`

- Your submission folder should include the following:

    - your .m or .py scripts for the required functions.
    - .m or .py scripts for generating the face morphing video.
    - any additional .m files with helper functions you code.
    - the images you used.
    - .avi files generated for each of the morph methods in face morphing.

- This handout provides instructions for two versions of the code: MATLAB and Python. You are free to select **either one of them** for this project.

- Feel free to create your own functions as and when needed to modularize the code. For MATLAB, ensure that each function is in a separate file and that all files are in the same directory. For python, add all functions in a helper.py file and import the file in all the required scripts.

- **Start early!** If you get stuck, please post your questions on Piazza or come to office hours!

1 Project 1B Extra Credit :

We have provided a video sequence of a human and accompanying annotations for the video. The annotations are from openpose and densepose projects. In addition to the raw frames and annotations a reader (HumanReader.py) has been provided to load all of the data in a sane way. We will be expanding upon this dataset in future projects so it would be a good idea to get familiar with it. The goal for Project 1B is to apply image blending in some meaningful way to the video stream. Possible ideas (non-exhaustive list):
- Holding a virtual object (blend an object image onto the video)
- Insert a new static background
- Copy the human to multiple locations in the video

Things to think about while doing this:
- The annotations are not perfect (not all key points are detected and not all silhouettes are fully inclusive in every frame)
- The tennis racket is not tracked (how to deal with this for a new static background?)
- What is the background vs foreground if there is an additional object?

2 Test and Submission

- Collect all your source code files and test images into a folder named as `<Pennkey>_Project1BEC`. Zip this folder and submit it to Canvas. Any break in this rule will lead to a failure in the test script. Only submit codes pertaining to your language of implementation. For example: If you choose to do the project in Python, do not submit the MATLAB folder containing the MATLAB starter codes.