**Preprocessing UNBC Dataset:**

The code is implemented as such it works in three steps

**Step 1** Simply reads all the landmark points in one big numpy file called ‘allPoints.npy’

**Step 2** Finds the AverageFace landmark points from all the normalized images and saves it in a file called ‘AverageLandmarks.npy’

**Step 3** Normalises each image, warp them to AverageFace and then save them, including the transformed landmark points, on the same path as the original.

**Notes:**

I am zipping the allPoints and AverageLandmarks numpy files for the entire 25 subjects dataset for reference.

**Files:**

1. TheAverageFace.py: the main file to be run
2. TheAverageFace.png: The Average Face image.
3. allPoints.npy: Numpy files for all landmark points of UNBC
4. AverageLandmarks.npy: Numpy File for Average Landmarks: ‘AverageLandmarks.npy’ (used for testing i.e warping input to precomputed average face)

Link to warped videos(320\*320) =

Link to warped images (320\*320)=

Link to warped images (1500\*1500)=

**Requirements:**

1. Python3
2. cv2 ‘3.4.2’

**How to run:**

run $python3 TheAverageFace.py -h to look at all the help options

*usage: Average Face [-h] [-Input INPUT] [-Output OUTPUT] [-Test TEST]*

*[-fps FPS] [-Frames FRAMES]*

*optional arguments:*

*-h, --help show this help message and exit*

*-Input INPUT put input images path*

*-Output OUTPUT put output images path*

*-Test TEST Set to true to warp images with pre computed average face*

*-fps FPS The fps of the input frames*

*-Frames FRAMES Set to true if output needs to be Frames*

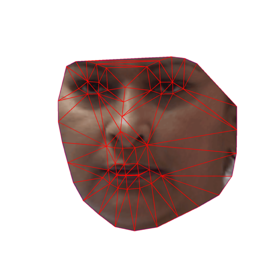
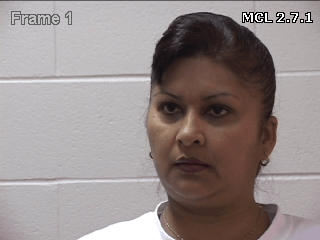
There are 5 optional flags:

|  |  |  |
| --- | --- | --- |
| **Argument** | **Explanation** | **Default** |
| -Input | specify the input database path | ./UNBC |
| -Output | specify the output path for the resultant images/videos | ./UNBC\_Warped |
| -Test | If warping input images to precomputed average landmark points | False |
| -fps | Frames rate per second for video output | 29.97 |
| -Frames | True if frames output, false if video output | True |

Example:

$python3 TheAverageFace.py -Test False -Input ./UNBC -Output ./UNBC\_Warped3 -Frames True

The output image looks like what was shared in the report before, including the AverageFace.





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