Week 7: Summer Internship

5 June 2021- 11 July 2021

Tasks

The main tasks in this week are as follows:

- Modify the code to incorporate the feature level similarity scoring.
- We have to establish relevance of morphing/photoshopping.
- Create morph images using photoshop/other tools available
- Test our algorithm on the outputs of those images.

Morphing in profile cloning

This paper talks about using morphing techniques to create fake documents like passport.

It also compares the detection ability of humans and computers.

Clean photoshopped images are very difficult to detect and is widely used in creating fake profiles and documents.

Link:https://cognitiveresearchjournal.springeropen.com/articles/10.1186/s41235-019-0181-4

Image morphing survey

These papers talk about various morphing techniques and use/misuse of the technique.

Link:https://www.researchgate.net/publication/2801109_Image_Morphing_A_Survey

Link:https://www.researchgate.net/publication/2855203_Recent_Advances_in_Image_Morphing

Fraudulent ID using face morphs and their detection. Link: https://bit.ly/3hOvc3b
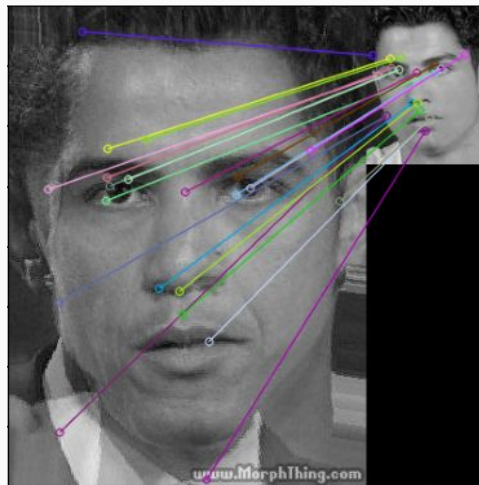
Created morphed images

I used https://www.morphthing.com/morph currently for creating morphs for the testing.

Some morphs are as good as natural while others have some distortions that could be removed using photoshop techniques.
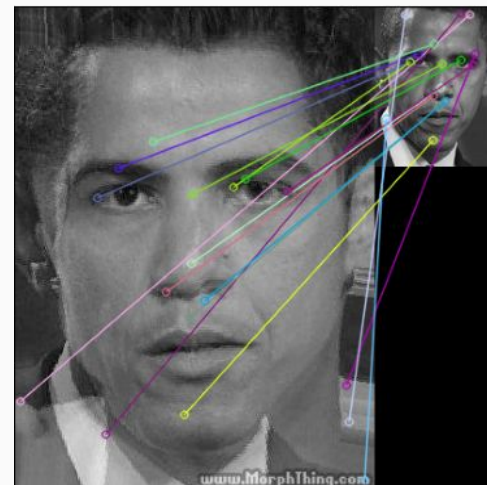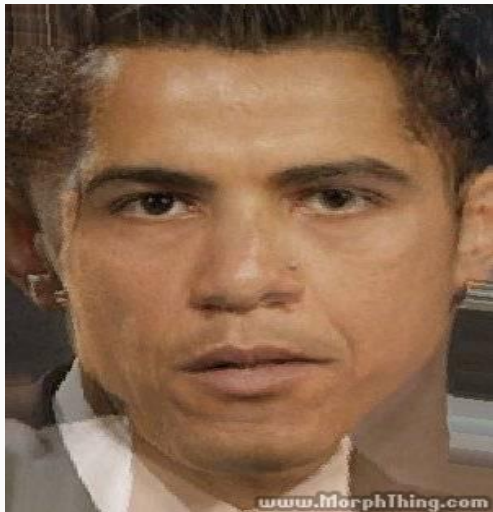
Morphing testing - 1

Test image

Original-1 (correct)

Original-2 (correct)

Morphing testing on google search

Tested at:
https://images.google.com/

Morphing testing on search engines

Google images showed output of "Harry Styles and Obama combined". Though it was able to guess that **it is a combination of two images**. But the originals were guessed incorrectly.
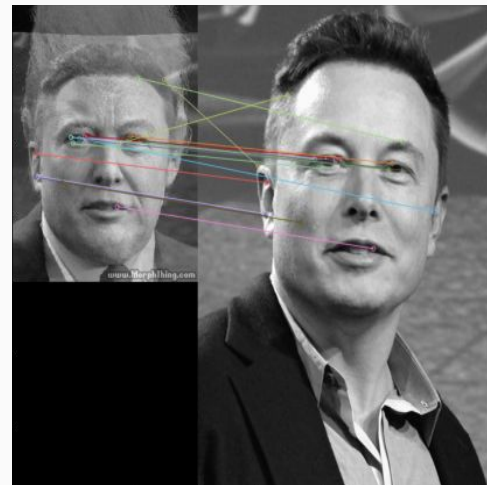
Pimeyes showed Barack Obama images as output.

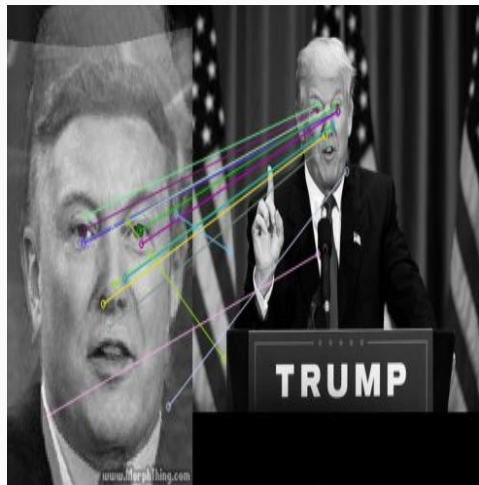# Morphing testing - 2

Test image
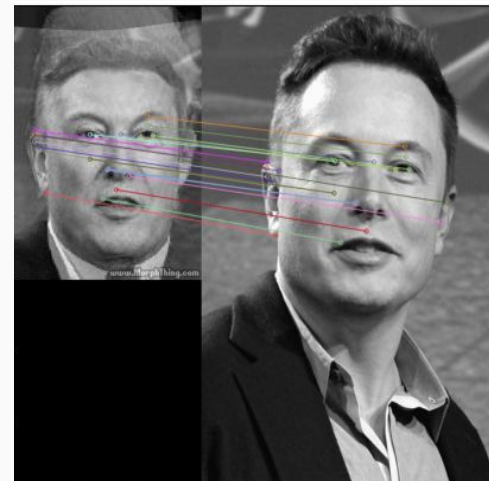
Original-1 (correct)

Original-2 (correct)

Morphing testing - 3

Test image

Original-1 (correct)

Original-2 (correct)

Getting feature-wise score

By simply sorting the features array in method -1 and taking distance array in method-2 and method-3, we are able to quantify similarity for every feature separately.

Power law technique is to be implemented.

Creating morphed images

Reading research papers for morphing techniques and power law implementation in opencv

Report work + Summarising + code work

5 July-6 July

7 July

8 July- 9 July

10 July

11 July

Testing the algorithm against morphed images (on search engines as well)

Got the array wise similarity for each feature