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CSMC 426
Project #1

Report

We each contributed equal parts to the project each group member played an integral role in finishing the project. Each group member contributed equal time and contributed many helpful ideas that were essential in finishing this project. Each of the group's members were pushing their changes and were very accessible whenever any help was needed by other group members. Each member read through the project description we each completed a specific part of the project, after completing our assigned part we all reconvened and combined our code in order to make the final product.

The lower dimensional representation of a face was similar to the original image in that it has a very basic shape of a human face. It contains all the features that are important to recognizing someone's face, there is an image of the nose, the eyes, and the mouth and some semblance of eyebrows as well. This is a very basic structure of a face and its similar in that it resembles a human face, however in terms of dissimilarities there are quite a few, in that there are no defined details about the face itself. There is no details for the lips so it is unknown as to whether the persons mouth is open or close, whether the person has a big nose or a small nose, or whether the person has defined eyebrows or undefined eyebrows to name a few. So, the lower dimensional representation provides a good start for recognizing someone's face but more can be done.

The face recognition seemed to be accurate for testing the original face, however as we continued to test the different faces it seemed that the faces seemed to all begin to look similar with varying facial expressions. One thing that we noticed from testing the different faces is the facial expressions of each of the people seemed to be slightly different each time, it never seemed to get the facial expression correct. However, for the image of the person wearing glasses it seemed that we were able to detect his face pretty well, however his mouth was incorrectly recognized.

We learned a couple of things from this thing, we learned about how very basic facial recognition algorithms function and we also learned about how lower dimensional basis vectors serve as the framework for facial recognition. We also learned about how it is more efficient to transpose a matrix into a smaller matrix so that it is more efficient to find the eigen vectors and values. We also leaned that generating and finding eigen vectors and values for large sets of data is very taxing on a CPU in that it takes a long time for it to process. We also learned that it is easier to map data to a lower dimension spaces than a higher dimensional space.