

# Biometric Security- Face Recognition

## Kyle Ferris

### Computer Systems Lab 2009-2010

## Abstract

In the modern world, sensitive data or access to buildings can be protected by more than just a key or a password. Biometric data unique to every human can be used to allow or deny access. The purpose of this project is to be able to create a "key" for any person who wishes to use the program. An image of the client's face will be taken and used as the base biometric key. When the client wishes authorization, a new picture of their face will be taken and compared to the base image. The program should be able to recognize the client and authorize him or her, while denying access to those not recognized.

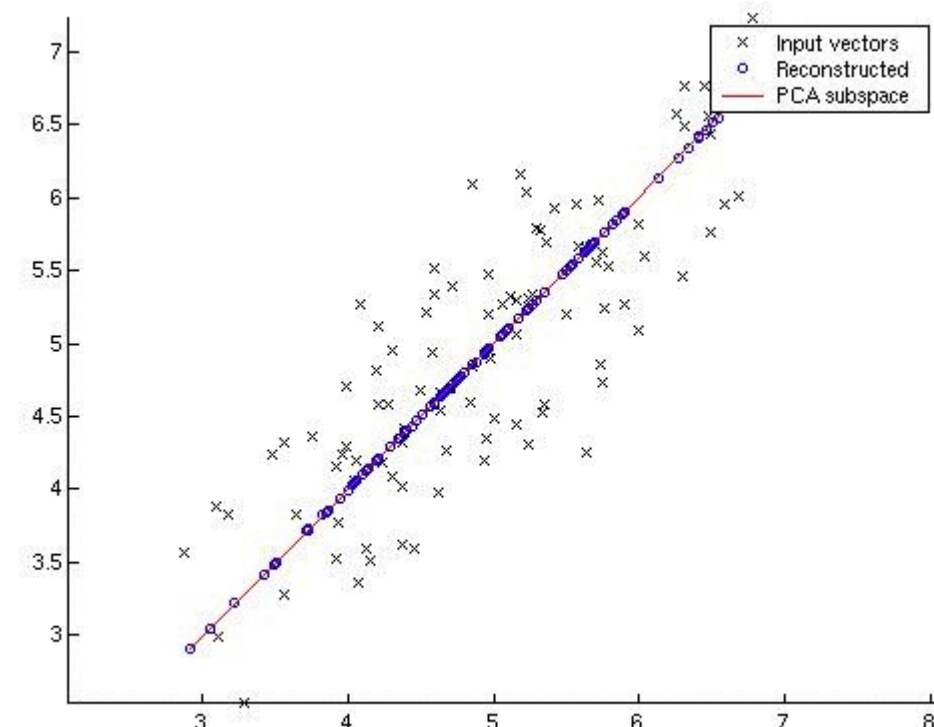


Fig 1: sample PCA output

## Algorithms

Mean Pixel Area Comparison (MPAC):

Given two grayscale images, it will in its internal processing split the image into different groups of pixels. It will then average the pixel intensities in those areas, and calculate the difference between average pixel intensity in equivalent areas in the two images.

Connected Components Labeling:

It will find groups of pixels of similar intensity that are considered part of one component of the image, and then "label" them as one component. The output is a list of groups of connected pixels- the components.

## Discussion

I have created the framework for expanding into PCA. I need to finish refining the CCL method in fourth quarter.

## Results and Conclusions

Coming soon



Fig 2: Sample Comparison images