# Project Log on WGEBML Kin Recognition

# 1 Related Work

## 1.1 Main Paper - WGEML

- The main parts of the paper are the face detection, the four face descriptors: LBP, HOG, SIFT, VGG, the penalty graphs and intrinsic graph and then using the graphs to figure out how the faces in the images are related.

# 2 Implementation Notes

## 2.1 Testing

- A folder for unit tests is made to correspond to each of the modules of the source code.

## 2.2 Face Detection

- Firstly, OpenCV2 was used to create a base implementation to draw a rectangle around a person's face in an image. This was done using the pre-trained classifier in "haarcascade_frontalface_default.xml". This allowed us to take a file image and output another saved file image which was the original picture with a rectangle around each face. The next step is to output an image of just the face and nothing else with the same dimensions.
- We were able to save the face on its own to an external image and change the dimensions of the outputted picture as needed. The current dimensions of the output is $64 \times 64$ as that is what the paper specified.

## 2.3 Feature Vectors

### 2.3.1 LBPs

- First, it was necessary to read the original paper on LBPs (Face Description with Local Binary Patterns: Application to Face Recognition).

### 2.3.2 Histogram of Gradients

### 2.3.3 SIFT

### 2.3.4 VGG