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Stage 1 Report: Data Acquisition and Description of Proposed Solution

The database that we found is from Cornell University’s research and it contains 13 subjects with 75 black and white images of each. These subjects make the same 5 or 6 facial expressions with images of transitioning from one expression to the next. This includes happy, sad, surprised, and neutral. We are planning on using 10 subjects for training, 3 for validation, and ourselves and our friends for testing.

The goal of our project is to detect a user’s facial expressions and display the emotion correlated to the facial expression. First, we will associate emotions to the image in the training data. In order to detect facial emotions, we will use facial landmarks. Tools like dlib and OpenCV will allow us to extract facial regions like mouth, right eyebrow, left eyebrow, right eye, left eye, nose, and jaw.[[1]](#footnote-0) We will extract the facial landmarks for every image in our database and calculate the average range of distances between each facial landmark for each type of facial expression.

We plan on splitting up the different facial expressions and determining the distances for each facial feature for these expressions.

Description of database:

<http://chenlab.ece.cornell.edu/projects/FaceAuthentication/#Download>

Download link:

http://chenlab.ece.cornell.edu/\_download/FaceAuthentication/faceExpressionDatabase.zip

1. https://www.pyimagesearch.com/2017/04/10/detect-eyes-nose-lips-jaw-dlib-opencv-python/ [↑](#footnote-ref-0)