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This week, I finished implementing the facial keypoint detection. I used dlib’s key point extraction with dlib. I had to tune my facial detection bounding box to make this work better. The bounding box from haar cascade is a doesn’t include chin most of the times. I made the bounding box stretch more downwards to help keypoint detection. I also found out that dlib also has a facial detection implementation that uses HOG+SVM, which apparently has less misdetection of small object compared to haar cascade in opencv. I will not worry about my current implementation for now since it’s working, but after I finish my project, I will test it out. I would like to show an image, but my code is on sys alab computers, so I don’t have a screenshot.

I also searched for ways to perform principal component analysis which reduces dimensionality of the parameters. It seems to be related to eigenvectors. I will be taking linear algebra next semester. Although, I don’t fully understand the process yet, I’m excited to see linear algebra being useful. This process lets me compare the points in KNN better. I will be comparing result of stabilized pixel based and keypoint based KNN accuracy. After some searching, I found out that scikit-learn can perform both KNN and principle component analysis.