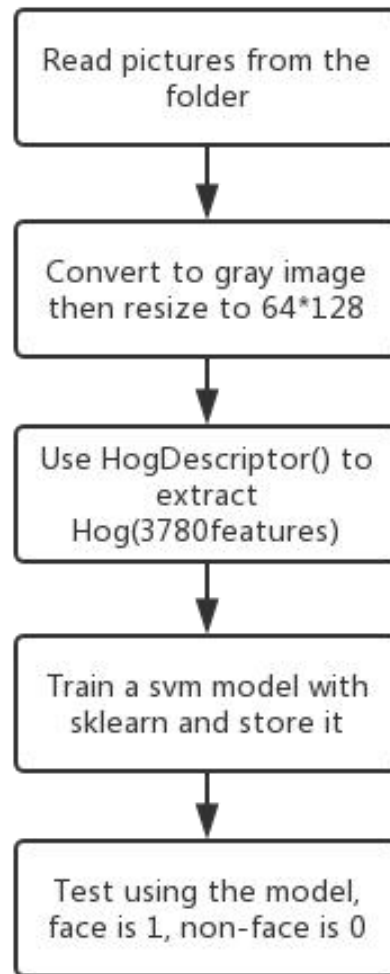


Face Detection with HoG features Report

1. Workflow



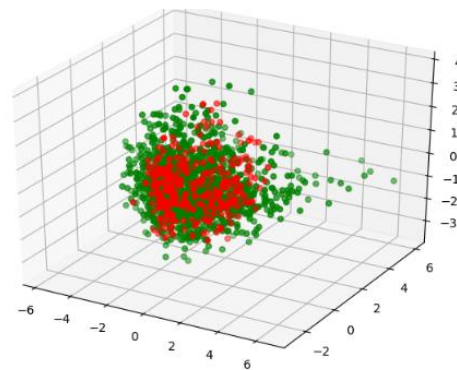
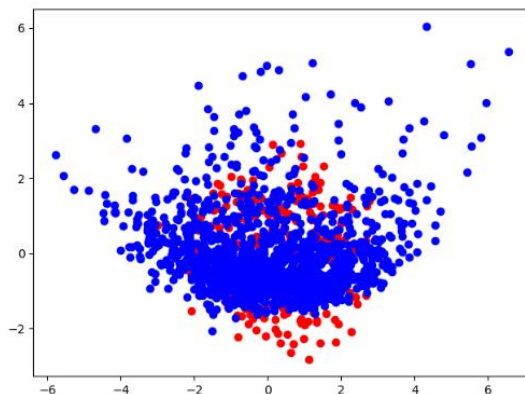
1.1 Use opencv to read all the images in the folder.

1.2 Convert images to grayscale images to reduce dimensions.

1.3 Resize the image to ensure that the hog features are the same length.

1.4 Use HOGDescriptor() for hog feature extraction and save them to the list.

1.5 Try to use PCA to reduce dimension, but no obvious separation is found through visualization.(As shown below).So use all the features to train.



- 1.6 Use the svm trainer in sklearn to train the model and save it.**
- 1.7 Use the face image separated from the 'n' file for testing.**
- 1.8 If it is a face then output 1, if not then output 0.**
- 1.9 Test the p folder with an accuracy of 0.8580,n folder with an recognition rate 0.0356.**

2. Findings

2.1 The default window of the function HOGDescriptor() is 64*128. If the image resize is 64*64, the program will not be executed.

2.2 Using too many negative samples will reduce my accuracy to very low, and I get satisfactory results when I use positive and negative samples of 300:300.