1. Face recognition using SIFT and SVM

In this project, we use SIFT to extract features from face images, and then apply SVM to classify the face images so that get face recognition model.

We use LFW dataset from scikit-learn package and it has cropped faces dataset. We use colored dataset for face recognition.

First, we read images from dataset, in order to increase the accuracy of model, we only use the dataset of people who have more than 70 images.

Then, we create SIFT feature extractor using cv2.feature2d\_SIFT() function, and then calculate 128 features from face image. This is input data. Output data is the index of name, it is between 0-6. (because there are 7 people in this train dataset.)

After making dataset, we split them in ratio of 3:1, 3 for train and 1 for test.

Next, we use GridSearchCV to find best parameters in SVM method, using these parameters we train SVM model for face recognition.

Finally, we test the accuracy of the model and save it as pkl file.

1. Face recognition using LBPH

In this project, we use LBPH method to train face recognition model.

We use LFW dataset from scikit-learn package and it has cropped faces dataset. We use colored dataset for face recognition.

First, we read images from dataset, in order to increase the accuracy of model, we only use the dataset of people who have more than 70 images.

Input dataset is the colored cropped faces. Output data is the index of name, it is between 0-6. (because there are 7 people in this train dataset.)

After making dataset, we split them in ratio of 3:1, 3 for train and 1 for test.

Next, we create LBPH recognizer using cv2.face.LBPHFaceRecognizer\_create() function and train with train dataset.

After training, finally we test the accuracy of the model and save it as yml file.

1. Gender prediction

This is much easier than previous two engines, because it is binary classification.

We use LFW dataset from scikit-learn package and it has cropped faces dataset. We use colored dataset for face recognition.

First, we read images from dataset, in order to increase the accuracy of model, we only use the dataset of people who have more than 5 images.

In this prediction model, we use above two methods, so input datasets are different, but the output datasets are same. If male, output is 0, and 1 for female.