Perform Facial Recognition with Deep Learning in Keras Using CNN

Project 4

DESCRIPTION

Problem Statement:
Facial recognition is a biometric alternative that measures unique characteristics of a human face. Applications available today include flight check in, tagging friends and family members in photos, and “tailored” advertising. You are a computer vision engineer who needs to develop a face recognition programme with deep convolutional neural networks.
Objective: Use a deep convolutional neural network to perform facial recognition using Keras.
Dataset Details:
ORL face database composed of 400 images of size 112 x 92. There are 40 people, 10 images per person. The images were taken at different times, lighting and facial expressions. The faces are in an upright position in frontal view, with a slight left-right rotation.
Link to the Dataset:

https://www.dropbox.com/s/i7uzp5yxk7wruva/ORL_faces.npz?dl=0

Prerequisites:
Keras
Scikit Learn

Steps to be followed:
1. Input the required libraries
2. Load the dataset after loading the dataset, you have to normalize every image.
3. Split the dataset
4. Transform the images to equal sizes to feed in CNN
5. Build a CNN model that has 3 main layers:

i. Convolutional Layer
ii. Pooling Layer
iii. Fully Connected Layer

6. Train the model
7. Plot the result
8. Iterate the model until the accuracy is above 90%