GNR 652: Machine Learning for Remote Sensing Project

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Project topic

Face Recognition using different Classification Models like:
1.Logistic Regression
2.Random Forest Classification
3.K-Nearest Neighbours
4.Convolutional Neural Network

And to find which one fits best

Overview

Due the rapid technology improvements, much more research is obtained for improving facial recognition. Since, facial recognition is very complex issues due its high complex features as: facial shapes, skin color, facial behavior, etc., this brings us to very interesting study area.

In this project I have trained different models on olivetti dataset to find out which one is the best for face recognition.

Dataset

It is a simple face recognition using olivetti face dataset.There are 40 unique faces of people in the dataset. We split dataset into 80% training set and 20 % test set to get a more accuracy.

Olivetti datset has 10 different images of each 40 subjects

Implementation of models and their Accuracies:

Logistic Regression

On applying logistic regression to training set we get an accuracy of 96.25 % .which is quite high

Random Forest Classifier

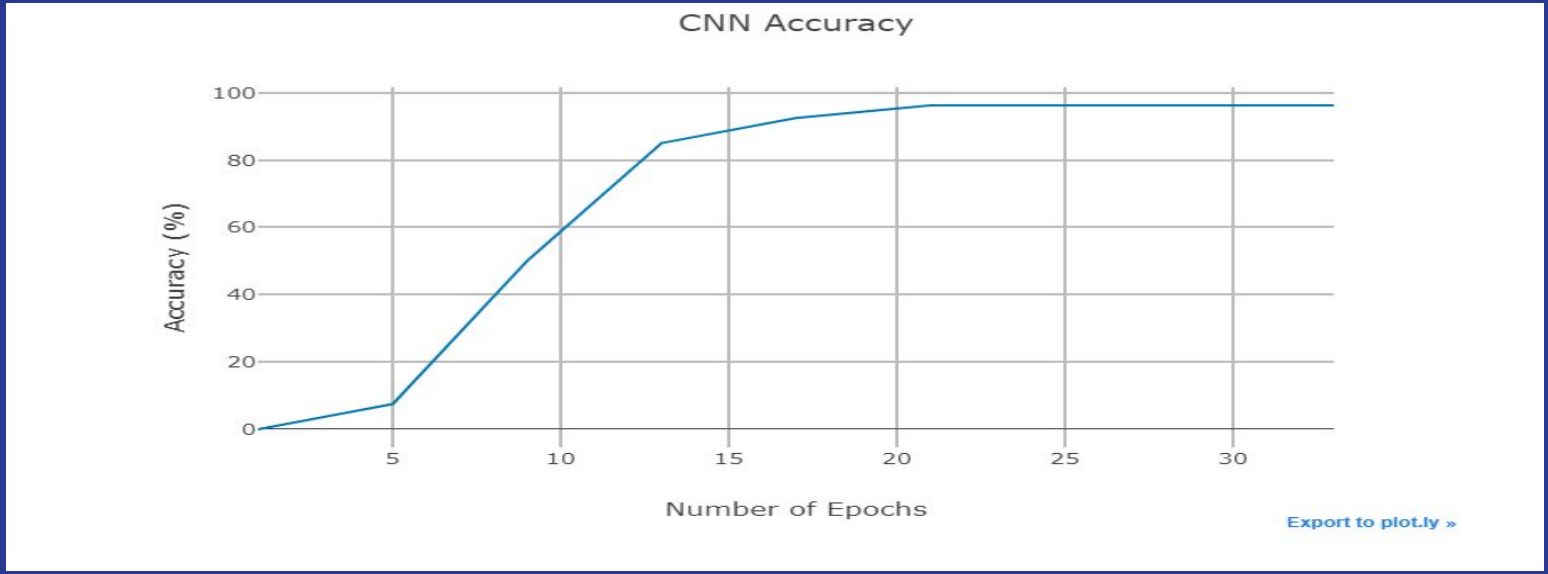
On applying Random Fotrest Classifier on Trining set we get a accuracy of 93.75 %

K-Nearest Neighbours

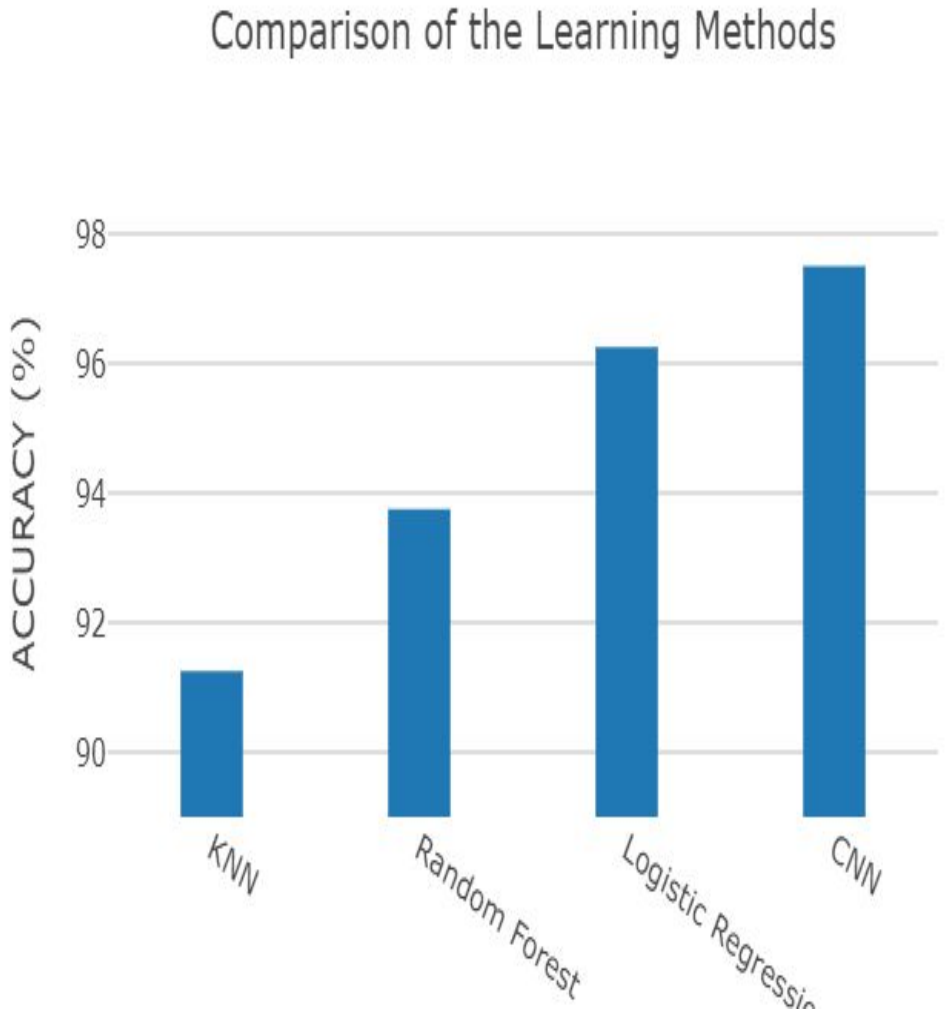
On applying Random Fotrest Classifier on Trining set we get a accuracy of 91.25 %

CNN

On applying Random Fotrest Classifier on Training set we get a accuracy of 97.5 %.Accuracy plot for each epoch in CNN is plotted



Best Classifier for this dataset



Best Classifier

Best Classifier for the olivietti face recognition dataset is Convolutional Neural Network with a accuracy of 97.5%.