A
Synopsis
on

Gender Classification Using Facial Images

Submitted in partial fulfillment for

Mini-Project III

Submitted by

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Title of Project: Gender Classification Using Facial Images

Introduction:

The proposed system of gender detection is to classify a human facial image into male and female comparing features of facial images of the datasets.It uses Local Binary Pattern(LBP) for facial feature extraction and Support Vector Machine(SVM) for classification purpose. LBP and SVM together gives an accuracy of around 94.7%.

Literature review/Existing Work:

Many research papers that are related to gender classification for different types of databases have been surveyed to identify numerous approaches use for different gender classification problems. In addition, the different classification analyses that are described in research paper have been viewed to get ideas on how the classification is treated.

Relevance/Importance of proposed work:

The gender recognition is essential and critical for many applications in the commercial domains such as applications of human-computer interaction and computer-aided physiological or psychological analysis, since it contains a wide range of information regarding the characteristics difference between male and female. Some have proposed various approaches for automatic gender classification using the features derived from human bodies and/or behaviours.

Scope of the work/Problem formulation:

A security entrance can use gender information for surveillance and control to some area.For example, female meeting is scheduled in conference hall and task is to allow only females to access the conference hall. It is Another application of gender classification is in commercial area.

Problem statement:

- To implement Local Binary Pattern(LBP) for facial feature extraction.
- To implement Support Vector Machine(SVM) for classification into male and female.

Objectives:

- To compare input image features with features of images of the Kaggle dataset.
- To construct two dimensional array containing of pixel values of input image.
- To classify gender based on feature like eye, eye brow, facial hair, nose.

Methodology:

- Gender Classification is decomposed into two parts

1.Feature Extraction
2. Classification

Feature Extraction involves following steps:

1.Convert input image into grayscale
2.Set pixel value as center pixel
3.Collect neighbourhood pixel(3x3 matrix)
4.Neighbourhood pixel value is 1 if it's value greater than center pixel otherwise 0.
5.Replace center pixel value with resulted decimal value

Classification involves following steps:

1.Import dataset
2.Explore the data to figure out
3.Divide the data into training and testing
4.Train the SVM algorithm
5.Evaluate the result of the algorithm

Technology Required:

1)Python
2)Pycharm
3)Github

References:

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