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Age Detection Using Convolutional Neural Networks

Dataset Description

We are going to utilize the datasets "facial age" which composes 9778 colored images [1]. In addition, we are going to merge this dataset with "UTK Face" involving 23,708 colored images [2]. The images in for both of the datasets are in JPG format and 200x200 pixel size. Furthermore, they are labeled with age as an integer. The "UTK Face" has ages in between 0 and 116, meanwhile "facial age" dataset contains images of people aged from 0 to 110. The distribution of samples among the ages is mostly balanced except for a spike of samples at 26. After age 65, concentration of samples decrease a bit.

Problem Definition

Using the total number of 33,486 images in our dataset, we will be aiming to train a convolutional neural network and detect the age of the presented image of a human face. Our samples will have a uniform format such as image size and color, as mentioned above, to be able to use it as an input to our convolutional neural network.

In order to obtain a balanced dataset, we are going to classify ages into intervals that are of similar sizes. For instance, an interval would be 20-25 or 45-50.

We plan to report accuracy, F1-score, recall and precision metrics to evaluate the performance of our model.

Milestone Goal

Our goal is to create a neural network model that can present an appropriate age range to the images in our dataset composed of "facial age" and "UTK Face" with a relatively high accuracy.

Final Goal

The final result will be a convolutional neural network trained by "facial age" and "UTK Face" which can predict an age range to a given image of a human face.

References

[1]   F. Rabbi, "Facial age," *Kaggle*, 25-Jan-2019. [Online]. Available: https://www.kaggle.com/datasets/frabbisw/facial-age. [Accessed: 18-Oct-2022].

[2] "UTKFace," *Utkface*. [Online]. Available: https://susanqq.github.io/UTKFace/. [Accessed: 18-Oct-2022].