Gender Classification with 203K Images DB

By Omar Abdulaziz Allaboun, November 18, 2021

Introduction

The Gender classification is being more attention by recognizing a person's gender based on the characteristics that differentiate masculinity and femininity. I am really interested doing such project to improve my technical skills as I work as a biometric analyst for more than 8 years. I have done a big project in biometrics as a part of my master study using Matlab. Now, I got the chance to learn and do something useful to biometrics through Python.

Abstract

The main aim is a classification analyzing a big database of images (~203k images) to provide an auto technical way tells us if any personal photo is for male or female? Then get a good model which can decide if any photo is for male or female with the lowest possible errors. Neural network with keras model is used for training in Python by tensorflow. By the end the model works courteously.

Design

The dataset images were split to 3 parts train, validation and testing (more details below). Main algorithm is Classification > Male or Female? Neural network with keras model is used to build the model in Python.

Data

I got a large Dataset. It is images database. It has 202.599 facial images for both males and females. Each image has the same pixel size which is 178x218 with JPG type. The dataset will be split into 3 parts as following:
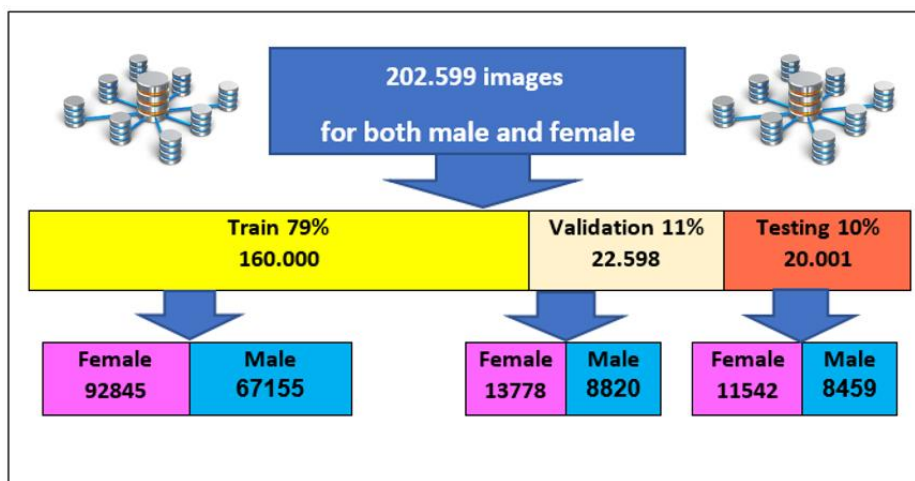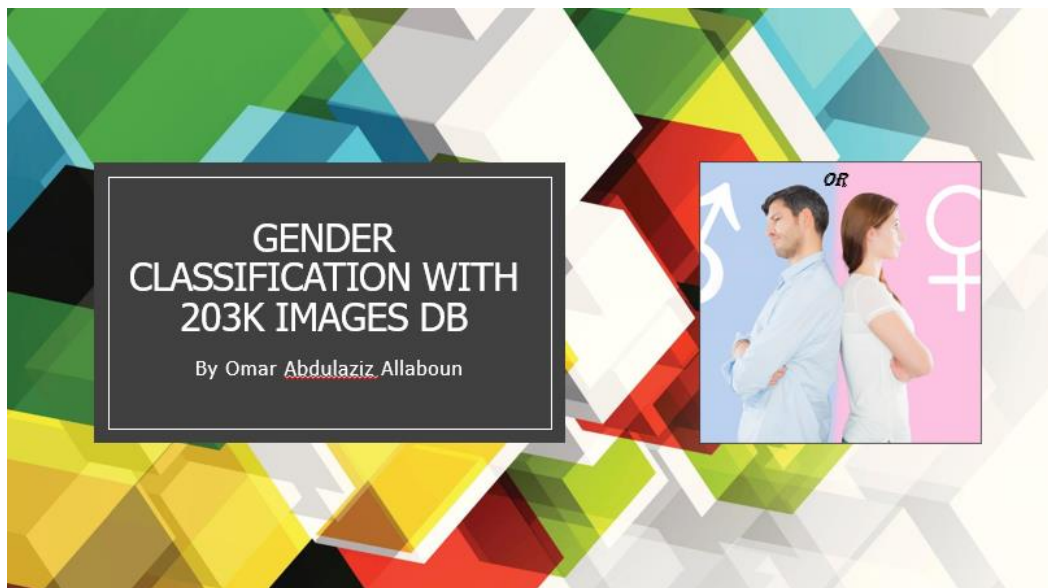
Algorithms and Tools

Neural network model with gender classification in Python are used to train the model. Libraries used are: os, tensorflow (Layers, Model, ImageDataGenerator), matplotlib, tkinter for UGI, numpy, keras (Adam). "model.fit" model is used for training as following scores: steps_per_epoch=128, epochs=50, validation_steps=128

The best gotten values:
loss: 0.2529 - accuracy: 90% - val_loss: 0.2066 - val_accuracy: 91%

Communication

In addition to the slides and visuals presented, all project details will be available on my personal website **https://www.tec2030.com**