Gender and Age Detection

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What is Computer Vision?

Computer Vision is the field of study that enables computers to see and identify digital images and videos as a human would. The challenges it faces largely follow from the limited understanding of biological vision. Computer Vision involves acquiring, processing, analyzing, and understanding digital images to extract high-dimensional data from the real world in order to generate symbolic or numerical information which can then be used to make decisions. The process often includes practices like object recognition, video tracking, motion estimation, and image restoration.

What is a CNN?

A *Convolutional Neural Network* is a deep neural network (DNN) widely used for the purposes of image recognition and processing and *NLP*. Also known as a ConvNet, a CNN has input and output layers, and multiple hidden layers, many of which are convolutional. In a way, CNNs are regularized multilayer perceptrons.

What is OpenCV?

OpenCV is short for Open Source Computer Vision. Intuitively by the name, it is an open-source Computer Vision and Machine Learning library. This library is capable of processing real-time image and video while also boasting analytical capabilities. It supports the Deep Learning frameworks *TensorFlow*, Caffe, and PyTorch.

The CNN Architecture

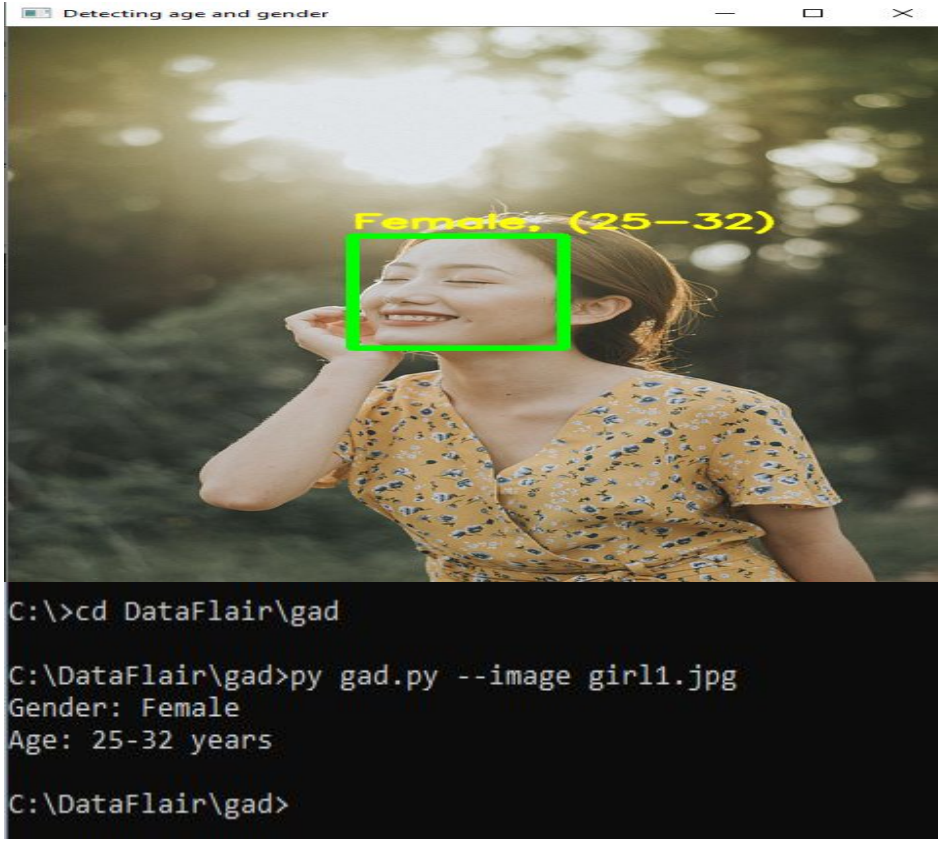
The convolutional neural network for this python project has 3 convolutional layers:

- Convolutional layer; 96 nodes, kernel size 7
- Convolutional layer; 256 nodes, kernel size 5
- Convolutional layer; 384 nodes, kernel size 3

It has 2 fully connected layers, each with 512 nodes, and a final output layer of softmax type.

To go about the python project, we'll:

- Detect faces
- Classify into Male/Female
- Classify into one of the 8 age ranges
- Put the results on the image and display it


Detecting age and gender
Female, (25—32)
C:\>cd DataFlair\gad
C:\DataFlair\gad>py gad.py --image girl1.jpg
Gender: Female
Age: 25-32 years
C:\DataFlair\gad>


Detecting age and gender
Female, (4-6)
C:\DataFlair\gad>py gad.py --image girl2.jpg
Gender: Female
Age: 4-6 years

Conclusion:

In this python project, we implemented a CNN to detect gender and age from a single picture of a face. Did you finish the project with us? Try this on your own pictures. Check more *cool projects in python with source code* published by DataFlair.