

# Age and Gender Detection Using Open CV (Open Source Computer Vision Library)

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**Abstract**—In this paper we have a tendency to propose a deep learning answer to age estimation and gender recognition. By exploitation deep learning concepts, we'll simply classify age and gender with additional accuracy although we've less refined values. We are using Kaggle dataset which is that the greatest available dataset of human faces for training. It contains all the Meta information. For age and gender classification we are using Keras high level API of TensorFlow. Keras is employed for building and training our model. Whether we've less data we can easily interpret gender and age by using TensorFlow the core open source library to help develop our model. To the top we demonstrate that our proposed method will show better results on age and gender estimation as compared to other methods.

**Index Terms**—CNN, TensorFlow, OpenCV and Kaggle.

## I. INTRODUCTION

Age and gender play fundamental roles in social interactions. Languages reserve different salutations and grammar rules for men or women, and really often different vocabularies are used when addressing elders compared to young people. Despite the essential roles these attributes play in our day-to-day lives, the power to automatically estimate them accurately and reliably from face images is still far from meeting the needs of commercial applications. This is often particularly perplexing when considering recent claims to super-human capabilities in the related task of face recognition. Past approaches to estimating or classifying these attributes from face images have relied on differences in facial feature dimensions or “tailored” face descriptors. Most have employed classification schemes designed particularly for age or gender estimation tasks, including and others. Few of those past methods were designed to handle the many challenges of unconstrained imaging conditions.

Moreover, the machine learning methods employed by these systems didn't fully exploit the massive numbers of image examples and data available through the Internet in order to improve classification capabilities during this paper we attempt to close the gap between automatic face recognition capabilities and those of age and gender estimation methods. To the present end, we follow the successful example laid down by recent face recognition systems: Face recognition techniques described within the last few years have shown that tremendous progress can be made by the use of deep convolutional neural networks (CNN). We demonstrate similar gains with an easy network architecture, designed by considering the rather limited availability of accurate age and gender labels in existing face data sets.

## II. LITERATURE SURVEY

1. Md Jashim Uddin, Dr. Paresh Chandra Barman, Khandaker Takdir Ahmed et al. Proposed a detection system using CNN model which can achieved 95% accuracy in age, gender detection with IMDB-WIKI dataset and 66emotion detection with FER dataset.
2. Thakshila R. Kalansuriya and Anuja T. Dharmaratne et al. Proposed a age gender detection system Using artificial neural network which achieved 70.5% accuracy Where FERET and FGNET datasets are used.
3. M.R Dileepa and Ajit Dantib et al. Proposed a age gender prediction system using Neural network and sigma control limit which achieved 95% accuracy.
4. Face Detection and Recognition using OPENCV and PYTHON (N Kateswara Rao), 2019.

### III.SYSTEM ARCHITECTURE

As per shown in below Figure1.1 First of all user images will captured through webcam. Detected face it will gone through the available database we have two database men and women. After successfully completing the all process and going through the CNN layers the system are ready to display the real-time age and gender prediction output frame.

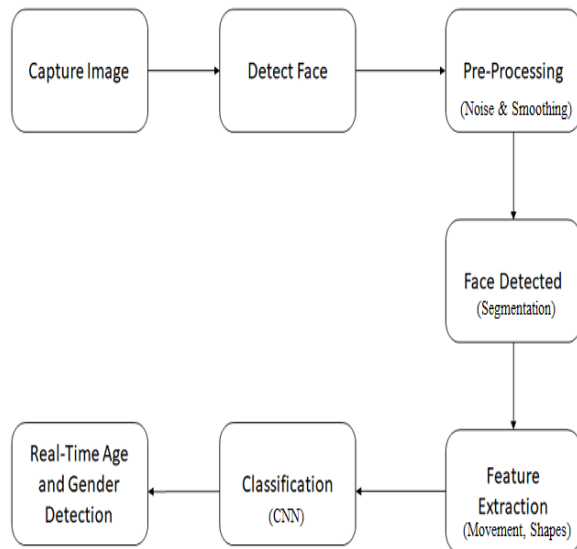


Figure1.1 Architecture of Age and Gender Detection System

#### Pre-processing:

The face image of a person is captured by a digital camera. Preprocessing includes three steps as detecting the image, converting to gray scale noise reduced image. The Pre-Processing stage can improve the quality of the input image and find the data of interest by eliminating noise and smoothing the image. It eliminates image redundancy without the image details.

#### Face Detection:

The face detection is the process is to extract the face are from the background of input image. It involves segmentation and extraction of facial feature from the uncontrolled background.

#### Feature Extraction:

In object feature extraction plays important role. It include shapes, movement, color the texture of a facial image. It extract meaningful information of a

image compared to the original image. Facial Extraction greatly reduce information of image.

#### Classification:

The classification stage recognizes facial image and group them according to certain classes and helps them skilled recognition. Classification is a complicated process because it can be playing role in many Areas. It classification stage also can called feature selection stage, which is deals with exchanges retain essential information and connect them in certain parameters. A age and gender classification system uses face of a person from a given image to tell gender (male/female) and age (22, 34) of the given person.

### IV. METHODOLOGY

#### Step 1: Capture Image

As per shown in figure.1 first of all user images will captured through webcam.

#### Step 2: Detect Face

After capturing the image through webcam with the help of OpenCV. System is detected captured face with available database.

#### Step 3: Pre-processing

After capturing the image and detected face it will gone through the available database we have two database men and women. After successfully gone through the dataset it goes to next step.

#### Step 4: Face Detected

After capturing the image and detected face it will gone through the available database. After successfully gone through the pre-processing step it detected the face are men or women and what is their age..

#### Step 5: Output

After successfully completing the all process and going through the CNN layers the system are ready to display the real-time age and gender prediction output frame.

#### Step 6: Exit

Activity Diagram:

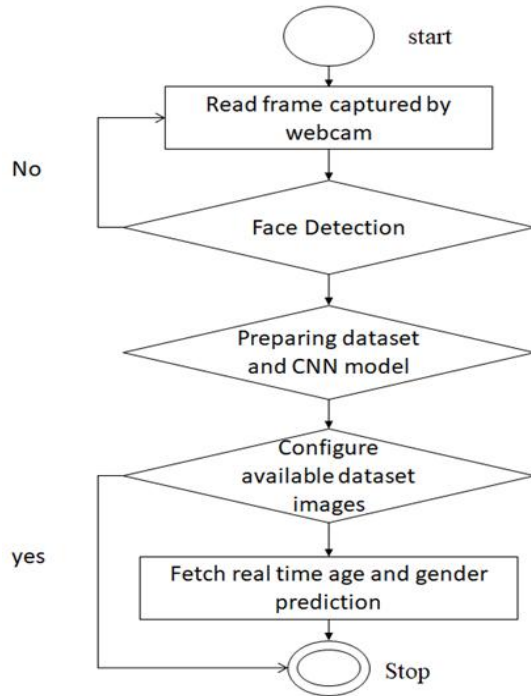


Figure 1.2 Activity Diagram

As shown in the above Figure 1.2 First of all user images will captured through webcam. Then system is preparing database after that CNN algorithm will work the captured it going through the database we have. The CNN model have contain with three layer. Then face will detect and going through the system it shown face detected and at the final stage it showing the real-time prediction of age and gender.

#### V. CONCLUSION

The system has developed with much care that it is free of error s and at the same time it is efficient and less time consuming. CNN can be used to provide improved age and gender classification results, even considering the much smaller size of contemporary unconstrained image sets labeled for age and gender. Image should be without spectacle. Image should be of a straight frontal face. Image should contain single human face only. The simplicity of the model implies that more elaborate system using more training data may well be capable of substantially improving results beyond these results. One can also try to use a regression model instead of classification for age predication if enough data is available.

#### VI. FUTURE PROSPECTS

Example could be Age Bot which is an Android App that determines your age from your photos using facial reorganization. It can guess your age and gender along with that can also find multiple faces in a picture and estimate the age for each face. This system can be deployed for verification and attendance tracking at various government offices and corporate. For access control verification and identification of authentic user it can also be installed in bank lockers and vaults.

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