

**ABSTRACT**

A human face provides a lot of information that allows another person to identify characteristics such as age, gender, etc. Therefore, the challenge is to develop an age group's prediction system using the method of automatic learning. The task of estimating the human age group from images of your frontal face, but it is challenging because of the pattern of personal and non-linear aging which is different from one person to another. Based on presenting face image with accuracy, examines the problem of predicting the age group of humans. The purpose of this study is to prepare a framework and later an algorithm that helps in estimating age group with proper accuracy of face images. In this paper, we present a method for prediction by age group, in which the age group is predicted by detecting face or face reference points using the violo-jones algorithm. After detecting the face, the features include geometric characteristics, wrinkle characteristics and HOG characteristics, and then these extracted features are used to train a classifier using neural networks. The system used self-creation databases for age group classification. In the end, the identification rate obtained by the HOG-neural network model makes better results.

**KEYWORDS:** Facial age estimation, Aging databases, FG-NET Aging.

**I. INTRODUCTION**

Classification of the age group of humans can be identified by identifying characteristics such as gender, age, nose, eyes, wrinkles etc. In recent years, who has attracted more attention, they produces processing techniques of facial images in a wide variety of graphical applications. The classification approach of the human age group plays an important role in the field on the basis of research applications, such as human computer interaction (HCI), 2D and 3D face recognition and virtual reality [1]. The age of the person is a lot of new ways and mainly focuses on analyzing the human face image and these-anthropometrics models are classified, aging and analysis of several regressions. Anthropometric is found in the form of sub-location of aging patterns of wrinkles and other methods of age to be classified in different age groups; Retrograde has recently received attraction and has been shown to be good; Age groups can be considered as a problem of pattern recognition, which includes two general steps: Feature extraction and identity [2] With the extracted facility, the identification can easily be done by regression and classification process. Age classification origin The training is disturbed by the training set through which the system is trained and the exam is set in which the use of the examination Age is for the group. Its main purpose is to develop an algorithm that recognizes the age of the person with the characteristics removed. The system can be useful to prevent young children from accessing adult content or content from the Internet and buying alcohol or cigarettes. It offers a wide variety, such as Multimedia Content Analysis, an interactive and our goal to build our intelligent robots, we need a good database in the form of FG-NET, so that these interceptors can use SVM or KNN The classifier used can be used to train and use SVM Classifier or angle in K-NN The main objective to solve our problem, therefore estimated age, so in relation to the front face of the working face. Now look at some ways, like the first image processing algorithm Viola Jones supports the ector machine, K is the closest neighbor, which has been used in the implementation of our proposed system. Among them, the face is the most natural and known biometrics. Age prediction refers to the use of training sets to train a model that can guess facial images. First, to check age predictions,



The two key phases is shown in the fig1.

**Algorithm and technique used**

- Viola Jones face detection algorithm
- Haar feature extraction using viola jones face co-ordinates.
- Morphological operation used to enhanced image quality
- KNN used to classification the selected features
- Artificial neural network used to selected feature

**II. LITERATURE SURVEY**

Rauhly, Baluja and Kanade (1997) introduced the structure of the nervous system-based face. Similar to the comparative framework, which is forbidden to face the honest, front face, this frame recognizes the face at any level of the revolution in the photo plane (Omima, 2014). In 1993, our motivation for a fuzzy logic-based pattern recognition framework emerged out of an overview, such as elsewhere (Smalljell, Johnson, 1993). In this application, the thickness of suspended particles in the liquid stream should be used to focus on the source of the molecule. In 2012, we used to direct an observational study that operates the BP nervous system model that recognizes the exchanges of suspicious property. There are distortions in the BP nervous system model which are more easily to fall in the surrounding model and it has medium speed in the meeting. At that time, we had proposed a strategy to increase the flaws in the BP nervous system model. By optimizing the BP nervous system with genetic algorithm, we have the ability to discover better starting weight and range for the system. In 2015, we propose a novel picture annotation strategy that expects to coordinate with the infectious nervous system so that various intensive nervous system can be arranged. Specifically, for each person's method, the proposed system to examine the parameters of the intensive nervous system and (ii) how to get the optimal mix of different settings in a clear process due to the classification of open datasets at the same time Proposal for the most focused execution of the proposed plan and the opposite of other existing best in class algorithm

Procedures in 2015 in the wake of the deep neural network (DNS) to attack the single-channel multi-layer speech recognition problem. Our proposed methodology includes five key features: a multi-style preparation process, a separate DNN, a weighted finite state transducer (WFST) mixed lecture information - on two grounds to evaluate the possibilities of some strong and entertaining speakers, The talk decoder is mutually related to the gauge and speaker and discourse, which is changing the speaker sentence, which is a composite of vitality Examples of lectures differ, and an important voice for the interruption of an anti-speaker in our proposed DNA-based framework, while examining the test speech of Disclosure Division and Acceptance Test of Determination based frame mixing technology 2006. The best establishment in these proposed structures meets the 18.8% crossword's common word fault rate (WeER) on various types of SNR and beats with 2.8% lower assumptions of the top supporter's IBM Superman Framework.

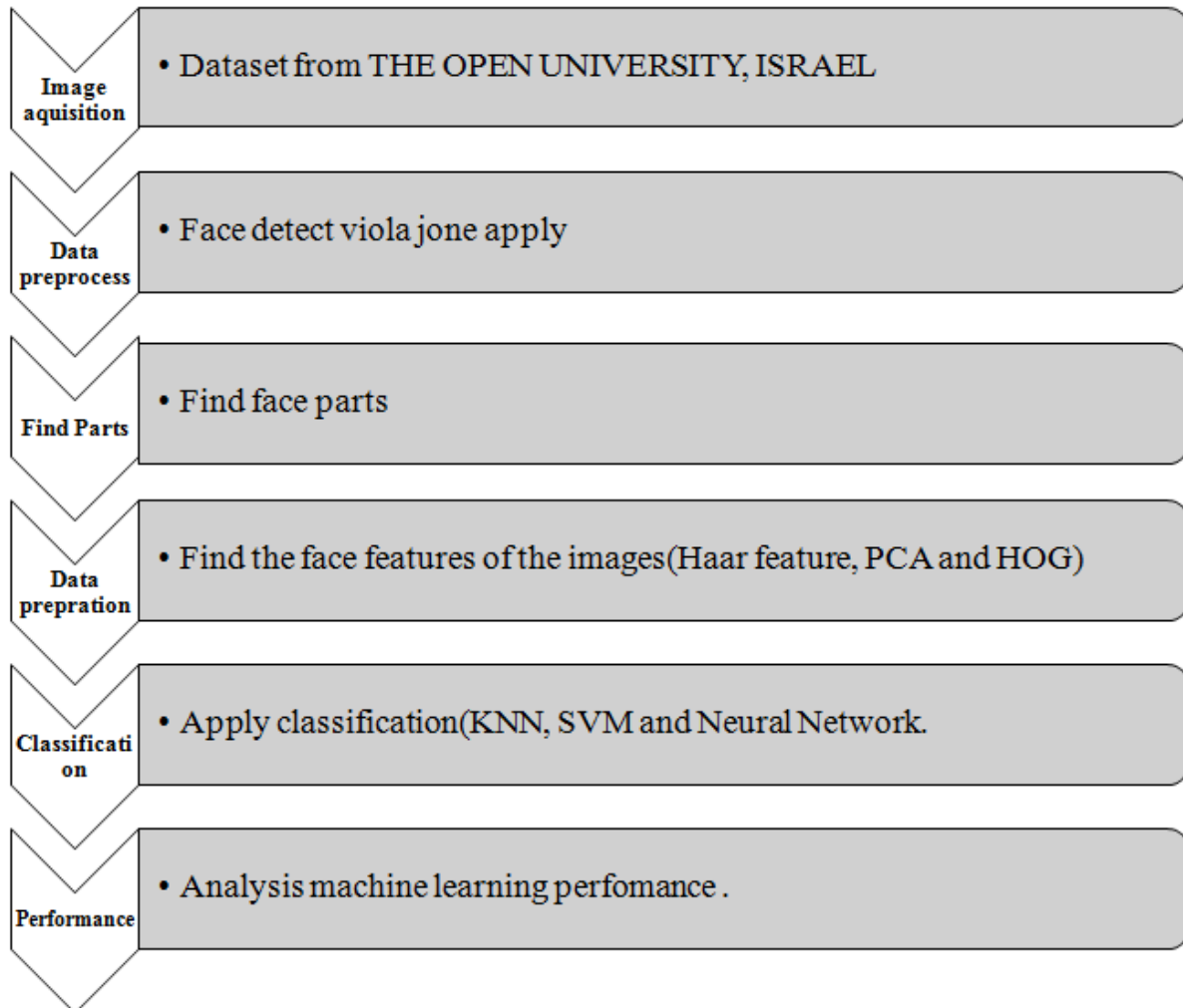
**III. PROBLEM STATEMENT**

The problem of age classification with facial images is very psychology, but it is also demanding because human age varies according to different factors which can be internal or external factors. Internal factors, including gender, genetics, etc. vary by age, whereas external factors affecting the age include lifestyle, drugs, racial etc., and both factors can make human development difficult. The process of evaluating the aging of the face of the developing face has achieved high accuracy rates for the baby's face, but for adults, this process has been a complex task because of different types of aging, internal factors, some years For skin texture and external factors, it should also be noted that age group predictions have been useful in different systems, such as demographic classification Training, computer-computer interaction (ASCII) and indexing of image datasets, and so on. In the automatic classification of age, the main objective is to develop an algorithm that allows the age group to be classified according to characteristics of the features. One of the main challenges of age grouping is the level of precision that is due to the complexity of the human aging model. Therefore, it is not only appropriate to classify human ages, but it is necessary to make the exact prediction possible as possible. Another important aspect of age-prediction problem is the age group category and this parameter is an important aspect because the different characteristics of the aging model are seen in different age groups, so the system is trained to deal with specific grades. Relevant to a more diverse category of age groups, in this study, we tell the prediction of age groups of young, adults and the elderly about the exact state of an acceptable degree of image-based classification of the face..

#### IV. PROPOSED METHOD

##### Flow Chart Of Age Classification

The brief description of each block is described below:



Because of the difficulty of estimating the exact age, the proposed system is implemented to classify age into certain ranges. The facial area is extracted from a real image. To train and test our system, we used the datasets organized in FG-NET. The proposed system mainly uses supervised neural networks with back propagation algorithm. the image is entered into the system, the entities are extracted, the image is classified in one of the four main age classes.

##### A. Pre-treatment

The first step of preprocessing is extraction. Extracting the face region means that the image is extracted from the input image captured with the crop tool. The input color image is converted to a gray image and stored in the database for processing. The region of the cropped face and the gray image converted.

##### B. Feature Extraction (HOG) & Wrinkle Analysis

The next step is to remove the features of Age classification. This system uses the hog descriptor (histogram-oriented gradient) to present the shape of the age classification. The hog descriptor counts the number that there is a gradient orientation in the localized image of the image. It uses histogram of intensity gradient to describe the shape of the object. This technique is flexible under shadow and light change. Because of this, this is a popular method for detecting feature extraction. The implementation method of the Hog algorithm descriptor is given as follows. First of all, the cells are divided into smaller possible areas of an image. These areas are called cells, for each of these cells, the slope towards the hilt or histogram of edges is calculated. Each cell is isolated

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and discrete in its angular compartment, according to its gradient orientation. The weighted shield of each cell contributed to its related angular bin. The adjacent cell with the same gradient orientation is grouped together and these spatial regions are known as blocks. These groups in the blocks are the basis of the generalization of the histogram, the generalized group represents the block histogram, which in turn represents the descriptor [Dalal et al. 2005].

**C. Classification using neural network**

Age classification using the feature selection Best classification techniques (neural network) used. Our project results will be unique and will help the researcher to get the best solution in the area of pattern recognition. This can usually be used to predict future predictions of the pattern recognition project. [92].

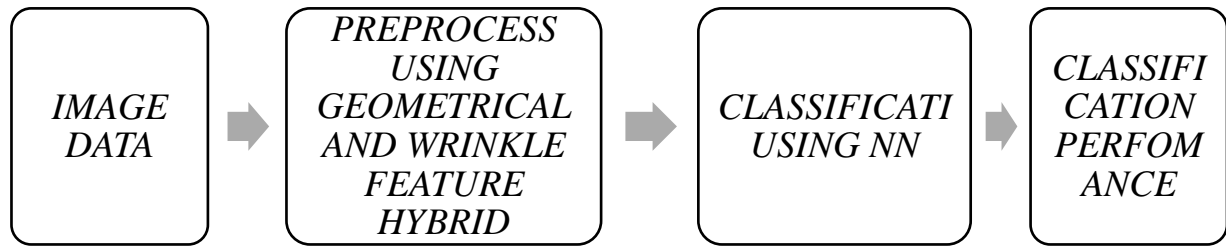


Figure 1. Block diagram of proposed work

**V. RESULTS AND PERFORMANCE EVALUATION**

**Results**

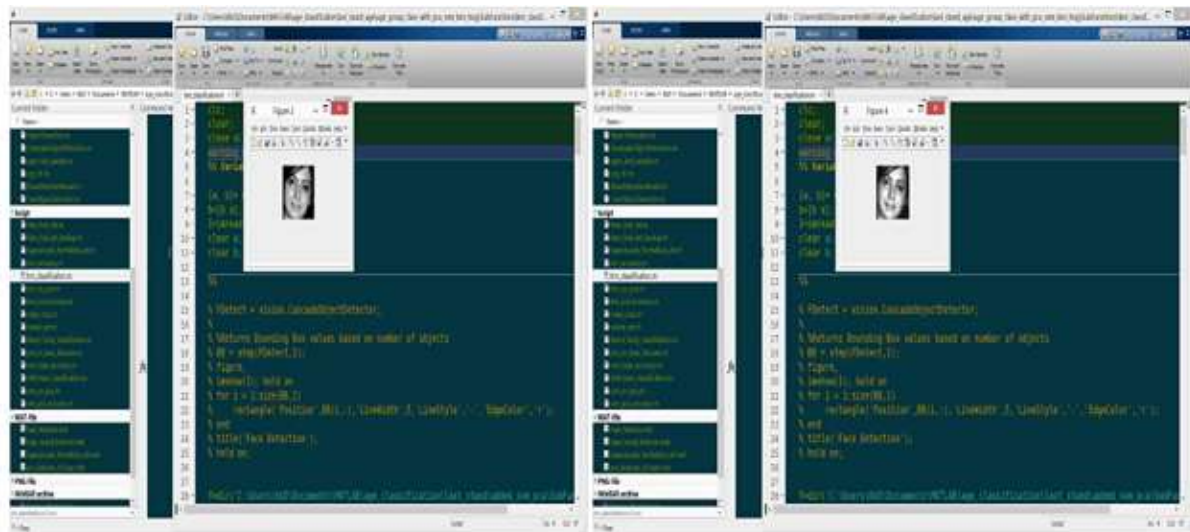


Fig. 5.2 Open test folder

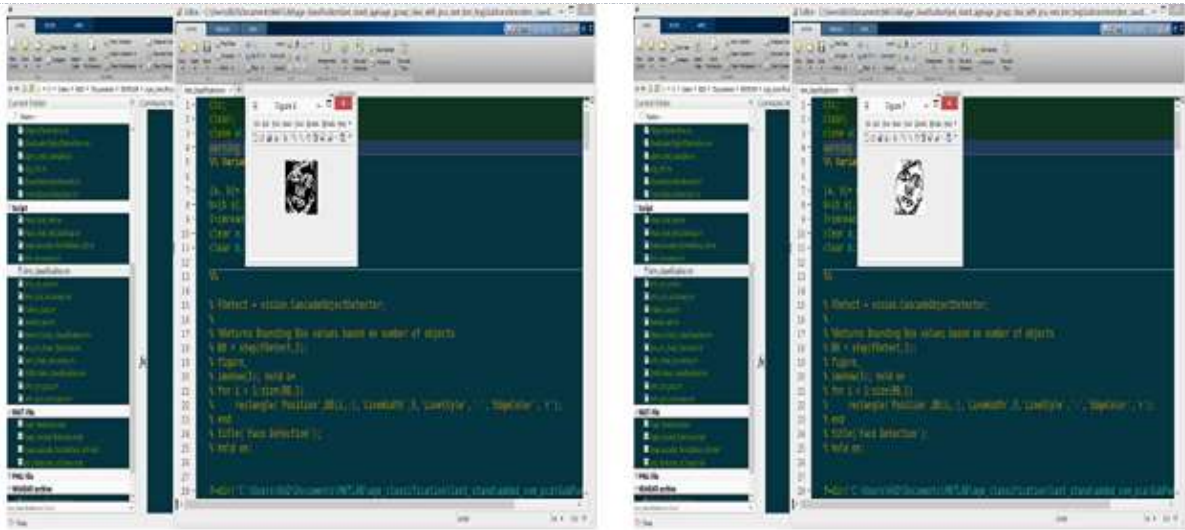


Fig 5.4 Gray scale conversion

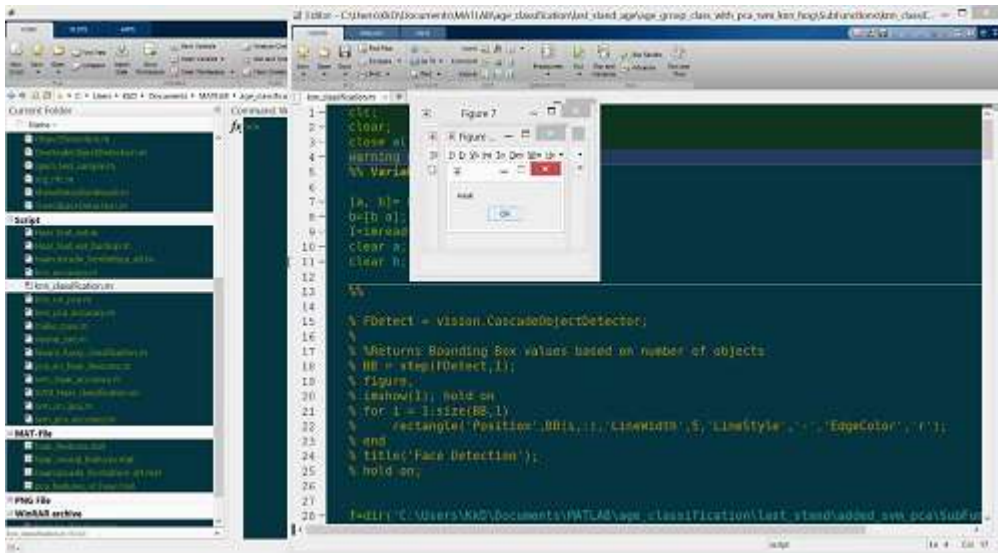


Fig. 5.6 Edge find

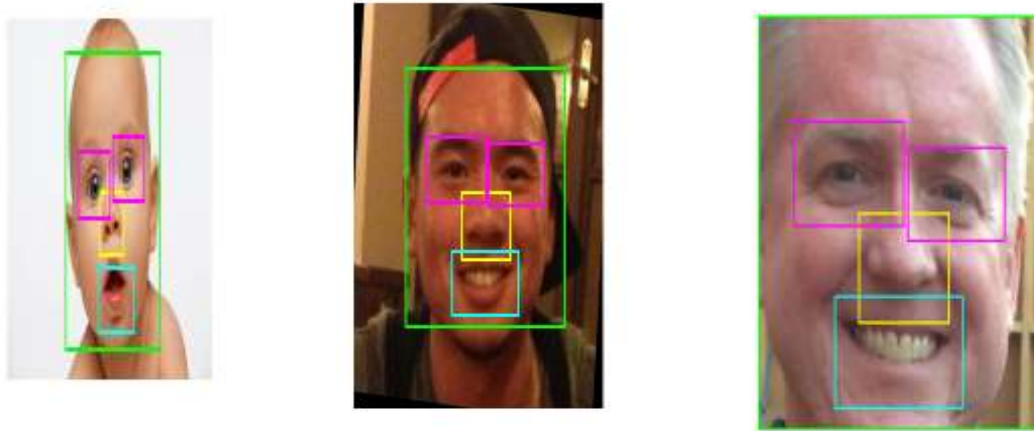


Fig. 5.7 Output for adult

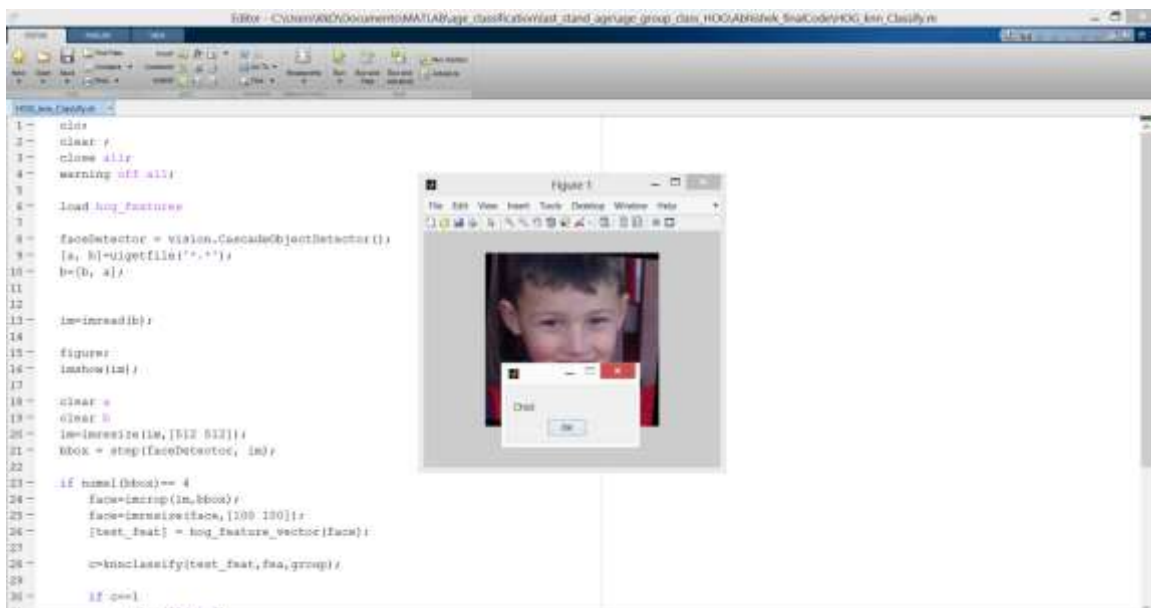


Fig 5.10 Child, Adult and senior face features detection (Face detection, Nose detection, Mouth detection and eye pair detection)

## VI. CONCLUSION

In this article, a new method for the assessment of age groups is described in detail. Thus, the technology proposed by HOG provides a strong method that verifies the age group of individuals from a group of images of different age group faces. Important extracted characteristics such as the distance between different parts of the face, the analysis of the geography of wrinkles and calculation of the face angle are calculated. All these methods are eventually compared to finding the best way to calculate the age ranges of face images in the database. After looking at the results of all the characteristics mentioned above, face images are in 3 groups, which are classified neural networks. There should be only one human face in the image, because we work on identifying individual age groups. This research works with 94% accuracy for two ages. Thus, there is a possibility of a certain possibility of new expansion of this work, which involves the removal of more specific points, which can improve the accuracy of classification of age groups. By starting more facilities, the age limit may be reduced



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