Volume No:2, Issue No:11 (April-2017) ISSN No : 2454-423X (Online)

International Journal of Research in Advanced Computer Science Engineering

A Peer Reviewed Open Access International Journal

www.ijracse.com

New System for Face Recognition

Essam Haider Mageed
Department of Computer Science, Faculty of Ccomputer Science and Mathematics, University of Kufa.

Professor Hind Rustum Mohammed
Department of Computer Science, Faculty of Ccomputer Science and Mathematics, University of Kufa.

Asaad Nori Hashim
Department of Computer Science, Faculty of Ccomputer Science and Mathematics, University of Kufa.

Abstract:
In this paper we displayed another strategy for face acknowledgment, we proposed blend of particular esteem decay for highlight extraction o discover three framework u, S, and V , and dark level grid for highlight choice (just for U network). And after that adjusted legendre for result from (U matrix) and changed connection to discover most extreme relationship .This new approach is apply on 400 face clips from ORL database, its delivered 99% precision which is better when contrast and another strategies.

Key Words:
legendre, distance classifier ,face classification ,and face recognition.

Introduction:
In this paper we displayed another strategy for face acknowledgment, we proposed blend of particular esteem deterioration for highlight extraction o discover three lattice u, S, and V , and dark level network for highlight determination (just for U framework). And afterward adjusted legendre for result from (dark fir U lattice) and changed connection to discover most extreme relationship .This new approach is apply on 400 face pictures from ORL database, its created 99% precision which is better when coalface acknowledgment is vital thing in our live so we should fabricate a framework its capacity as like the capacity of human, to do that we presented keen framework its errand perceive individuals without impact from human in do essentially undertaking , however human impact in manufacture a framework.

The explanations for construct this framework , initial one is the requirement for face acknowledgment in this day's high, second is to lessen the human impact this prompt diminish cost ,and there are many reason however the past reasons are the fundamental. Early face acknowledgment calculations utilized straightforward geometric models, yet the acknowledgment procedure has now developed into a study of complex numerical portrayals and coordinating procedures. As of late, face acknowledgment explore has picked up noticeable quality inferable from the increased security circumstance over the western world.[6]. Confront acknowledgment is a standout amongst the most well-known biometric frameworks in operation fundamentally as a result of its non-meddling and high level of security. Programmed confront acknowledgment has across the board applications in biometric security, observation and criminal identification. [7].

Related Work:
A. The minutes with Legendre polynomials as bit limits implied as Legendre minutes were exhibited by Teague[1]:_

$$Lpq = \frac{(2p+1)(2q+1)}{4} \int_{-1}^{1} \int_{-1}^{1} Pp(x)Pq(y)f(x,y)dxdy \quad (1)$$

Different examinations are coordinated by isolating highlight vectors for the face pictures in the database using Fourier descriptors, Hu minutes , legendre minutes and Zernike minutes [2].

Volume No:2, Issue No:11 (April-2017) ISSN No : 2454-423X (Online)
International Journal of Research in Advanced Computer Science Engineering
A Peer Reviewed Open Access International Journal
www.ijracse.com

Thusly the minutes address the independent characteristics of a photo. Used two decline state of legendre same as equation (1).[3] But the another condition used to do go up against affirmation is:_

$$Lpq = \lambda pq \sum_{i=1}^{M-1} \sum_{j=0}^{N-1} Pp(xi)Pq(yi)f(i,j) \quad (2)$$

Legendre for another work is utilized the first condition appear underneath to do the(FR). [4].

$$\lambda nm = \int_{-1}^{1}\int_{-1}^{1} Pn(x)Pm(y)f(x,y)dxdy(3)$$

Annadurai and Saradha (2004) used the Legendre minute invariants (LMI) for the polynomial weakening of a grayscale picture. The LMI, Lm,n of a squared N XN picture (i, j) and The institutionalization coefficient λm,n is given by [5]:_

$$Lm,n = \lambda m,n \sum_{i=1}^{m}\sum_{j=1}^{n} I(i,j).Pm(xi).Pn(yj)(4)$$

$$\lambda m,n = \frac{(2m+1)(2n+1)}{(N-1)^2}(5)$$

B. distance classifier is older distance

The simple distance between two points (s , r) :_

$$distance(s,r) = \sqrt{\sum_{i=1}^{n}(si-ri)^2}$$
(6)

C. original correlation

$$correaltion(K,K1) = \frac{\sum_m \sum_n (K_{mn} - (totl\,a_{mean}\,(K)))(K1_{mn} - (tota\,l_{mean}\,(K1)))}{\sqrt{(\sum_m \sum_n (K_{mn} - (totl\,a_{mean}\,(K)))^2 (K1_{mn} - (tota\,l_{mean}\,(K1)))^2}}$$
(7)

Proposed System:

A:-To begin with we locate the Singular esteem Decomposition this strategy for highlight extraction and after that apply dark level co_ocuuerence lattice just for u network for highlight choice.

B:-Modified legendre:- we utilized changed legendre to discover just a single an incentive for every individual picture. Adjusted the legendre recipe to play out the errand to a facial acknowledgment utilizing legendre will give high need in facial acknowledgment when chipping away at properties utilizing condition and it will create just a single esteem for every individual in an indistinguishable range from can't help contradicting individual differs with degree will be facial acknowledgment without cover.

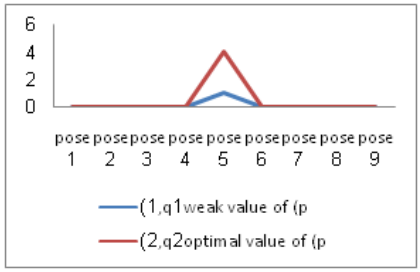
$$modified_{\Delta PQ} = \frac{(2p+1)(2q+1)}{(M-1)(N-1)} \sum_{x=1}^{M} \sum_{y=1}^{N} 2p(x)f(x,y)(8)$$

$$p(x) = \sum_{p=0}^{\frac{q}{2}} (-1) \frac{(2q-2p)!}{p!(p-q)!(q-2p)!}(9)$$

There are imperative figures the above conditions (8,9) influence the operation of the calculation in the first condition for legendre we change the condition to be a similar size, so increase p(x) by 2 to deliver new condition. When we change in estimation of (p , q) in equation(9) Legendre work make great acknowledgment, Show in(figure(1)).

C:-modified Correlation :- For characterization we utilized separation classifier and adjusted relationship for discover most extreme connection between information picture and result from separation classifier. The modified correlation depends on value (0.9135),if build in function of Correlation in matlab greater than or equal to previous value will modified to become (1) , this leads to increase the correlation for same poses of same person.

Volume No:2, Issue No:11 (April-2017)
ISSN No : 2454-423X (Online)
International Journal of Research in Advanced Computer Science Engineering
A Peer Reviewed Open Access International Journal
www.ijracse.com



Figure(1):-The curve between poses and value of (p , q).

Algorithm of Proposed System:

The proposed algorithm for modified legendre depends on two values (p and q) so we change in these two value to get on good result from legendre equation for proposed algorithm ,first we select optimal values (p and q) to achieve that the legendre will give a high curve as show in (Figure(1)) and then apply modified legendre and the steps show below:

Step1:-Read database images

Step2:-Convert (step1) into gray scale and then to double.

Step3:-Apply SVD , and take only u matrix for (step4).

Step4:-Convert matrix u from (step3) into Gray Level Co_ocuuerence Matrix with 45 angle.

Step5:-Apply proposed legendre function to find legendre for result from GLCM , the result will be only single value ,this value is feature For decision.

Step6:-Database consist of multiple persons with multiple poses , so we find for each pose (single legendre value), and save result according to persons of database in a matrix of persons and poses.

Step7:-Enter the person image to test it, and apply same steps(step2,step3,step4 and step5), the result will be only one single value.

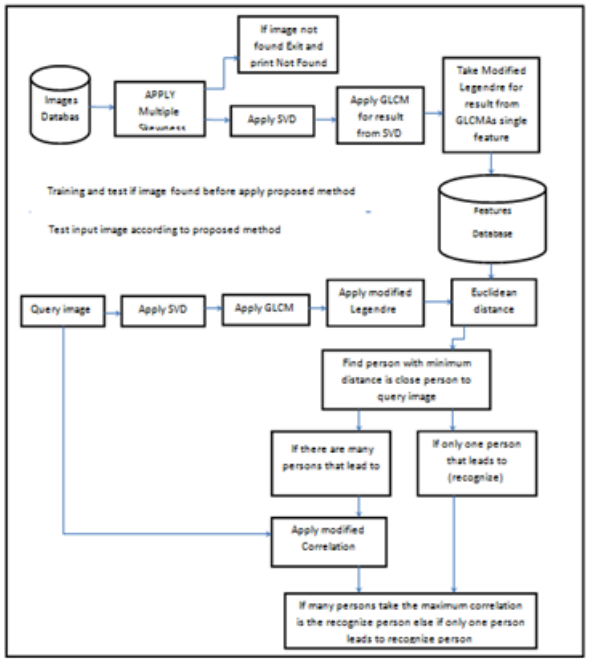
Step8:-Apply Euclidean distance between result from(step7), and result from(step6).

Step9:-find minimum distance , if there are only one person go to(step11), and if there are many persons go to (step10).

Step10:- Apply modified Correlation between persons from minimum distance and input image ,and then find person with maximum correlation is the recognize person to input image.

Step11:-Recognize image.

End of Algorithm



Figure(2):- Training and testing of proposed method.

Analysis for Proposed Method:

.In our method is increase ability in recognition. Not only that the previous paper used legendre at same it, there is no change in equation of legendre, in our proposed method we will change in equation to become a new approach we modify on equation to get on high performance increase ability of recognition.

Volume No:2, Issue No:11 (April-2017)
ISSN No : 2454-423X (Online)
International Journal of Research in Advanced Computer Science Engineering
A Peer Reviewed Open Access International Journal
www.ijracse.com

In table(1) show the error rate of proposed method and another methods. In table(2)show the recognition rate of proposed methodand another methods.in (figure(3)) show recognition rate for proposed with compare with another methods.

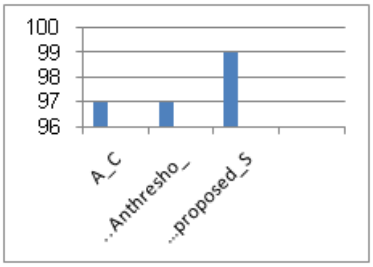
$$performance = \frac{number\ \ of\ false\ \ image}{totla\ \ number\ \ \ image} (10)$$

Table (1):-Error rate of proposed methods and another methods

Algorithm	False
Anthro_3D	1.65
ACFFR	1.64
Proposed method	0.64

Table (2):-Recognition rate of proposed methods and another methods

Algorithm	False
Anthro_3D	97.3
ACFFR	97.5
Proposed method	99



Figure(3):-Recognition rate of proposed and another methods.

Conclusion:

Using combination of (SVD ,GLCM), and modified legendre would give priority to the task of facial recognition that reason that legendre depends mainly facial recognition we need to be similar for different shots per person and with the rest of the picks for someone else legendre will give this property. We conclude that chose to value will manipulate curve discrimination so we choose optimal value to(p, q) to be high curve when that snapshot low for other shots are not the same person, show in (figure(1)) the result according to our proposed method is 99%.

Reference:

[1]Dr.S.Annadurai, A.Saradha, Face Recognition Using Legendre Moments.

[2]A. Saradha, S. Annaduri , A Hybrid Feature Extraction Approach for Face Recognition Systems.

[3]Rajiv Kapoor, Pallavi Mathur,(2013), Face Recognition Using Moments and Wavelets.

[4]javad haddadina, karimfaez, paymanmoallem, neural network based face recognition with ,moment invariants.

[5]Bensenane Hamdan *, Keche Mokhtar,(2016), Face recognition using Angular Radial Transform.

[6]Arnold Wiliem, Vamsi Krishna Madasu, Wageeh Boles & Prasad Yarlagadda, A face recognition approach using Zernike Moments for video surveillance.

[7]Hafiz Imtiaz and Shaikh Anowarul Fattah,(2010), A Face Recognition Scheme Based on Spectral Domain Feature Extraction.