

RECOGNITION OF FACE USING ARTIFICIAL NEURAL NETWORK

PiyankaPatil
Samskshabave

A bstract

Face recognition is a natural ability by which we are able to identify and distinguish between faces. It is a complex process that involves the visual system, memory, and social interaction. Face recognition is a critical component of human social interaction, allowing us to identify and distinguish between different individuals. This ability is essential for forming and maintaining social relationships, as well as for understanding and responding to social cues. Face recognition is also a key component of many social and cognitive processes, including decision-making, emotion regulation, and social learning. The study of face recognition has a long history, with early research focusing on the basic principles of visual perception and memory. More recent research has focused on the neural mechanisms underlying face recognition, as well as on the role of face recognition in social and cognitive processes. This research has led to a better understanding of the complex processes involved in face recognition, and has also led to the development of new technologies for face recognition and identification. In this paper, we will review the current state of research on face recognition, and discuss the implications of this research for understanding human social interaction and for developing new technologies for face recognition and identification.

exleuapigacom puer
 filhem om emv emvli
 grepeople natus of
 erihan ageyose,
 dchaacichexfines
 pammigum eoughsind
 onab having num eous
 onracesonall ughos
 yemifindam eratum an
 onscanditacansam ong

Keywords: Face recognition, Artificial Neural Networks, Deep learning

ckpropagator.m .

Introduction : Humans have been using physical characteristics to recognize each other for thousands of years. With the advancement of technology, this has become an essential part of our lives. This paper explores the history and current state of facial recognition technology, its applications, and the challenges it faces. It also discusses the ethical considerations and future prospects of this technology.

has anyone
years. With new advances in
obliging recognizing individual
selves as unique
man has a new danger of
entering into a common
consideration in recent
years.

A lot of many face recognition applications face detection poses also a very challenging problem proposed with enough success to consider etc. However, even though it is a face detection considered in his point paper Face recognition applications for identification and verification recognized unknown and similar the advantages of individual the verification problem the system identification purpose.

data is needed. Although many techniques have been developed for each, from being solved by hand, can be divided into two basic categories: problems that are known and confirmed, and the dimed

2 Face Recognition From Image Sequences

system automatically detects face regions, extracts features, and recognizes faces. It is a challenging task because of the variability in face appearance and the limited availability of training data. Face recognition based on video sequences is a more practical approach because it can provide a continuous stream of face images. However, video sequences are often noisy and contain many irrelevant frames, which makes the task more difficult. In this paper, we propose a novel face recognition method based on video sequences. Our method consists of three main steps: (1) face detection, (2) feature extraction, and (3) face recognition. We will discuss each step in detail in the following sections.

Significant changes for video based recognition have

A typical video based face recognition system extracts features from the video, and then uses a classifier to recognize faces. The main challenge in video based face recognition is how to deal with the temporal information in the video sequences. There are two main approaches to deal with this problem: (1) feature extraction based on temporal information, and (2) feature extraction based on spatial information. In this paper, we propose a novel face recognition method based on video sequences. Our method consists of three main steps: (1) face detection, (2) feature extraction, and (3) face recognition. We will discuss each step in detail in the following sections.

to improve the performance of video based face recognition.

(1) The quality of video

but in bad conditions for video capture and the quality of the video is very poor. This is a major problem for video based face recognition.

Usually video acquisition occurs outdoors and

conditions

subject to noise and interference. This is a major problem for video based face recognition.

(2) Face in image sequences

are often small and the face is often partially occluded. This is a major problem for video based face recognition. In this paper, we propose a novel face recognition method based on video sequences. Our method consists of three main steps: (1) face detection, (2) feature extraction, and (3) face recognition. We will discuss each step in detail in the following sections.

A good face acquisition condition is very

important for video based face recognition.

important for video based face recognition. In this paper, we propose a novel face recognition method based on video sequences. Our method consists of three main steps: (1) face detection, (2) feature extraction, and (3) face recognition. We will discuss each step in detail in the following sections.

(3) The characteristics of human body parts

human body parts are often small and the face is often partially occluded. This is a major problem for video based face recognition. In this paper, we propose a novel face recognition method based on video sequences. Our method consists of three main steps: (1) face detection, (2) feature extraction, and (3) face recognition. We will discuss each step in detail in the following sections.

During the past years, research on human body parts has been very active. Many researchers have proposed various methods for human body part recognition. In this paper, we propose a novel face recognition method based on video sequences. Our method consists of three main steps: (1) face detection, (2) feature extraction, and (3) face recognition. We will discuss each step in detail in the following sections.

3 Face Recognition Process

face recognition has become a popular topic in the field of computer vision. This is because face recognition has many applications in security, surveillance, and human-computer interaction.

The basic steps of face recognition process

are

acquisition, feature extraction, and classification.

1. Acquisition of face images

face images are often small and the face is often partially occluded. This is a major problem for video based face recognition.

face images are often small and the face is often partially occluded. This is a major problem for video based face recognition.

face images are often small and the face is often partially occluded. This is a major problem for video based face recognition.

face images are often small and the face is often partially occluded. This is a major problem for video based face recognition.

In system analysis, we ignore the 2D form and analyze.

2. Extracting Features

This can be done by use of available automatic description of the present unique features of the old.

3. Comparison Templates

The purpose of the comparison between the two templates is to find out the difference between the two templates. The difference is the difference between the two templates.

4. Matching

The matching process is the process of comparing the two templates. The matching process is the process of comparing the two templates.

4. Step 1: Face Recognition

Unknown face and system are both the same. Known individuals have a face problem. The system is the input face. The system is the input face. The system is the input face.

For example, a person in a face is acquired in a change in the face and pose. The system is the input face. The system is the input face.

For the purpose of the system.

This depends on the application and the user.

The face recognition system will be a candidate.

The face recognition system is the input face.

acquire 'observation' will be supplied.

The system will be any of the system. The system will be any of the system. The system will be any of the system.

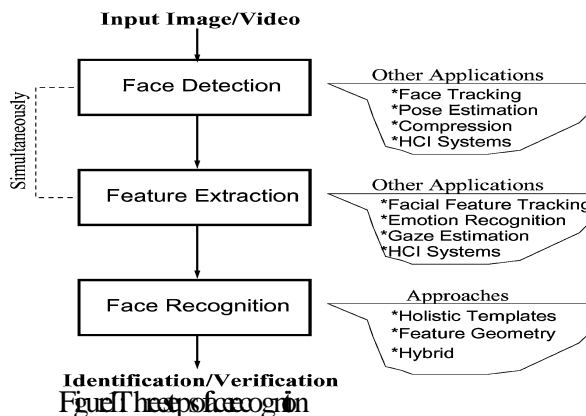
given picture of the subject and the system will be any of the system. The system will be any of the system.

the system will be any of the system.

the system will be any of the system. The system will be any of the system.

an outdoor environment with

unsolved problem. The system will be any of the system.

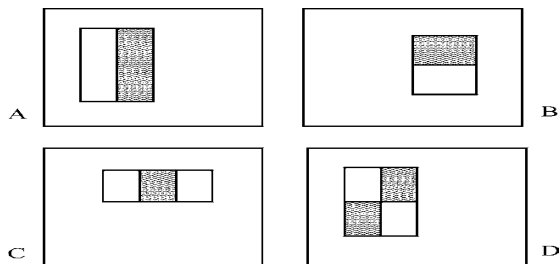


A face recognition problem of a face is a problem of a face. The system is the input face. The system is the input face.

face recognition involves the key of face. The system is the input face. The system is the input face.

different subspaces. For example, used for face recognition of used in feature extraction can be viewed in the following,

Figure 2. Exam ple of features show how the The sum of pixels in the horizontal line of the eye and the two vertical lines (C) how the vertical line and (D) four corners of the face and the center of the face.



This is the first step of any face recognition system. The first step is to extract features from the input image.

5. A Simple Method for Face Recognition:

(Hough transform) The Hough transform is a technique for finding lines in an image. It is used for finding the 'Similarity' percentage between the input image and the template image. The output of the Hough transform is a set of lines in the image space.

Face Recognition is a very difficult task. The first step is to extract features from the input image. The second step is to compare the extracted features with the features of the known faces. The third step is to find the best match between the input image and the known faces.

6. The Backpropagation Algorithm :

The backpropagation algorithm is a supervised learning algorithm. It is used for training neural networks. The input to the network is a set of features, and the output is a set of class labels. The network is trained by adjusting the weights of the connections between the input and output layers.

exam ple of features (eyes, nose, mouth, etc.) and the output of the network (class labels) are shown in Figure 2.

Figure 2 shows the output of the network for the input image. The output is a set of class labels. The network is trained by adjusting the weights of the connections between the input and output layers. The output of the network is a set of class labels.

The second step is to compare the extracted features with the features of the known faces. The third step is to find the best match between the input image and the known faces.

A simple method for face recognition is to use the Hough transform. The Hough transform is a technique for finding lines in an image. It is used for finding the 'Similarity' percentage between the input image and the template image. The output of the Hough transform is a set of lines in the image space.

how to find the best match between the input image and the known faces.

Backpropagation Algorithm

The backpropagation algorithm is a supervised learning algorithm. It is used for training neural networks. The input to the network is a set of features, and the output is a set of class labels. The network is trained by adjusting the weights of the connections between the input and output layers.

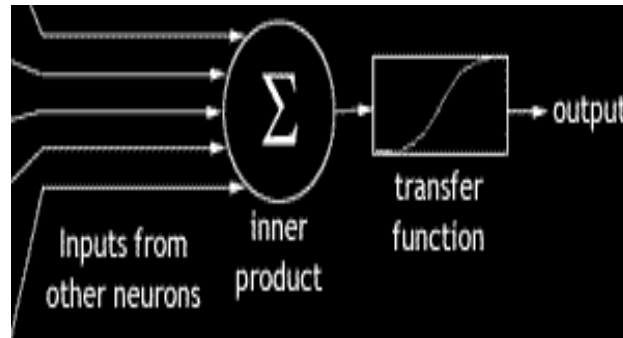


Figure 3 Backpropagation Algorithm

This output is compared to the known good output. The error value is then propagated back through the network, adjusting the weights and biases of each layer. The reduction in error is the goal of the algorithm.

Randomly generated weights and biases are used to initialize the network. The error is calculated for each input-output pair, and the error is propagated back through the network to adjust the weights and biases.

1. A successful recognition model depends on the ability to learn from the data and to generalize to new inputs.
2. Backpropagation is a method for calculating the error gradient with respect to the weights and biases of the network. This BPNN provides a method for changing the weights and biases of the network.
3. A typical back propagation network with multiple layers is shown in the figure. The error is calculated for each input-output pair, and the error is propagated back through the network to adjust the weights and biases.
4. A generalized network can be used to recognize new inputs. The error is calculated for each input-output pair, and the error is propagated back through the network to adjust the weights and biases.

Backpropagation is a method for calculating the error gradient with respect to the weights and biases of the network. This BPNN provides a method for changing the weights and biases of the network. The error is calculated for each input-output pair, and the error is propagated back through the network to adjust the weights and biases.

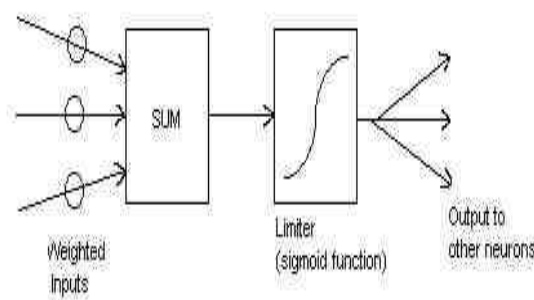


Figure 4 Neuron Structure

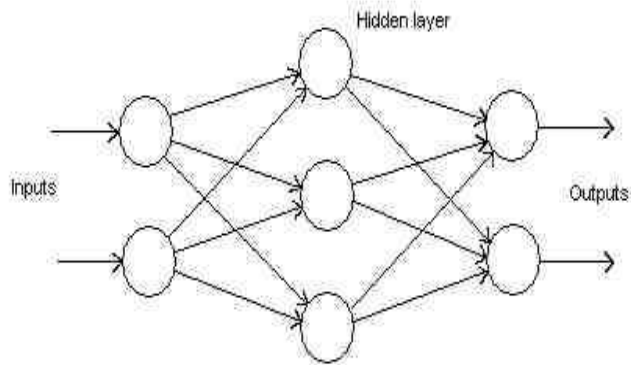


Figure 5: Structure of a feedforward neural network

Figure 4: The structure of a feedforward neural network. The input layer consists of 2 nodes, the hidden layer consists of 3 nodes, and the output layer consists of 2 nodes.

one of the previous neurons in the layer. The output of the network is the value of the output node.

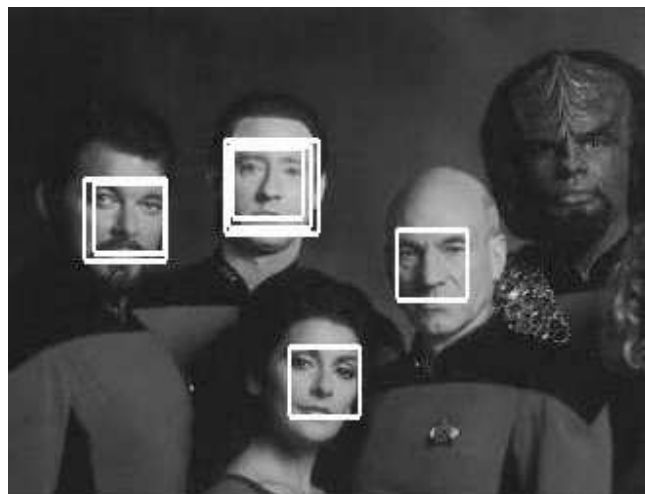


Figure 6: Face recognition results

Conclusion: The computer-based face recognition industry has a long history, but it is still in its early stages. With the advancement of technology, the accuracy of face recognition systems is improving. However, there are still many challenges that need to be overcome. For example, the system needs to be able to recognize faces in different environments and under different conditions. Additionally, the system needs to be able to handle large amounts of data and to be able to learn from new data. Despite these challenges, the potential of face recognition is vast, and it is likely that it will become a widely used technology in the future.

dem uchusefil
on higher accuracy system in
y governm ente volutions and
to n h u a p i n g h e b a f o f e
system is very useful in the
regions

Thipri gives an accurate handout
 in consum ingnum eousapponi
 conlym sontribadm agevalid
 com putitices

Face recognition has been and will continue to be a problem in intelligence work and in the

recognisearch.com in univillaweb.org.uk

com pletely sole ly he problem Strong and coordinated effort between

vision processing and psychophysics

onally, a recognition of the need for
national security and security
conferencing and information an

very challenging and difficult

30 years ear be under the face

during the next 30 years

resources in units needed.

the com puter

References

1. Jackie A bbari, Shah Pez, D enis V, R ober, eorid, Feder Penman, and Robe Z ak “ Face B om at Sysm ’ Proceedings of Student Faculty Research Day, CSSP, ad U niver M ay 8, 2009.
2. C zy H avn CH upd L ed y and dor pd, Y cyen M (2002) *Independent Com ponent Analysis*, 1st Edition, O N ove m ber 2008)
3. Gatneland Thom as A W oodw ad H or CB io m eka Looka Facil Recognit (2003)
4. M cC olm A, Inductio B ak Propagati Neur al Netw ork Pat (1998)
5. Neurotechnology w w neurotechnology.com (O N ove m ber 2008)
6. Li, SH, K ung, SY ,and Li, LJ ‘Face Recog nitio n by Probabilistic B ased Neur al Netw ork’ IEEE Trans Neur al Netw orks vol 8, pp 141-152, 1997.