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Effective Segmentation Methodology For Object Identification.

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ABSTRACT

Nowadays video segmentation method is based on one of the most difficult tasks. Many methods are used in image segmentation but video segmentation method is very rare .Because video segmentation method has large datasets and video input this can generate more images. So it is very difficult to identify matched person or object. In this paper I propose Convolution Neural Network for person or object re-identification. I use novel depth based video segmentation method which extracted segments not only preserve object boundary but also detect the object or person. Finally given input image is compared with video sequence data values and then the results of our approach is that the person or object can be detected separately.

Keywords: Convolutional Neuron Network.

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INTRODUCTION

Recently one of the most important tasks in video sequence is person or object re-identification. To find out object in video segmentation is difficult. The novel appearance is based on approach to handle difficult pose and illumination [6]. It allow for matching appearance of individual object or person. For person or object to re-identify , accurately is crucial for wide area tracking where person or object are track [4].In general case object re-identification is difficult due to large number of appearance changes. It cause by environmental problem of re-identification which has been examine for not moving images however video based on re-identification problem and it not have same attention due to lack of large video identification of data in the past[5].

The person re-identification is useful for match individual image across with many images. The accurate person re-identification can help to reach target in video monitoring surrounding. This result can be used in other task like track which let association in a multi camera tracking system [23]. It is not feasible to identify every person in a video because large amount of image data that contain persons of interest. Thus the matching person is highly desired. So we cannot get exact object which we want due to inaccurate image [17].

To solve this problem I propose a Conventional Neutral Network for object re-identification. In our approach each frame is first processed by a Convolutional Neutral Network for person appearance at particular instant of time. For this Convolutional Neutral Network which have fully connected layers. This image is passed through the entire layer then finally we get accurate object or person.

RELATED WORK

EVALUATING APPEARANCE MODELS FOR RECOGNITION, REACQUITION AND TRACKING.

Traditionally, this models for recognition, reacquisition and tracking problems have been evaluated independently using matrix applied to a complete system [22].To solve this three problems by using cumulative matching curve on standardized datasets and one curve can be converted to synthetic disambiguation rate for camera tracking [3].For example viewpoint invariant pedestrian recognition for challenging new datasets for each dataset contain 632 images pairs from arbitrary viewpoints [21]. Many baseline methods are tested on this datasets. These results are presented as a benchmark for future models and matching methods [7].

LEARNING INVARIANT COLOR FEATURES FOR PERSON RE-IDENTIFICATION

A person re-identification is matching people across many cameras view is a challenging problem. Because it changes in visual appearance by varying lighting conditions [10]. In this paper they propose a data approach for learning colour pattern images across two camera views [8].In learning problems by jointly learning a linear transmission and they also analyze variety of photometric invariant colour space. To show superior performance use combining with learning features like low level and high level. Finally they got promising results in VIPER and person RE-ID-2011[2].

PERSON RE-IDENTIFICATION WITH DISCRIMINATIVELY TRAINED VIEWPOINTS INVARIANT DICTIONARIES

In this paper they propose new approach to find person re-identification problem in cameras with overlapping field. The capable of discriminatively and encoding features representing different people by using learn dictionary method. In this approach directly addresses two main challenges in re-identification. One is viewpoint variations and discriminatively [12,13].First using single dictionary to represents both gallery and image in training phase after that discriminatively train the dictionary by associated sparse of feature vectors. In the phase re-identify probe image by determining gallery image that has the closest sparse to that the probe image in Euclidean sense [20].

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MULTISHOT HUMAN RE-IDENTIFICATION USING ADAPTIVE FISHER DISCRIMINANT ANALYSIS

Human re-identification has only focused on single shot case in real world applications. It has image sequence from either the person or object to be matched by using automated video tracking. Here each candidate extracted from gallery [9]. In this paper multiple visual shot methods used.

In this method each subject observed during training and testing stages and all the image sequence has equal weights to produce sub optical performance. They introduce an algorithm; hierarchically cluster image sequence [11] .In clustering and subspace learning process are applied step by step to obtain discriminative features .The difference between two cameras applying to bridge appearance by using matrix learning steps. The result is state of art methods [1].

PROPOSED SYSTEM

In this paper I use novel depth based video segmentation method used for object detection and also used in varies application .The aim of video segmentation method is that extracted segment not only preserve object boundaries but also detect object or person .Here I introduced Convolutional Neural Network for object re-identification. For using this method we will get output easily. This segmentation method is also used for video editing and stylization. The high quality segmentation results are also used in other applications like non photorealistic rendering.

In this project, I use Convolutional Neural Network to re-identify the object or person .In this architecture each frames is first processed by CNN to produce feature vector represents the person appearance at a particular instant in time .After that, the information about the frames flow through all the layers in CNN.

Before the output all the time steps are oriented using a temporal pooling .So this network used to summarise a long video sequence into a single feature vector. The aim of this method is that re-identification of a person or object .It must be decided whether two images are same or not. The following section I explain the CNN method in detail.

CONVOLUTIONAL NEURAL NETWORK

CNN has many individual processing steps. Therefore for rotational simplicity I refer to use complete CNN as a function F=C(x).At each time steps of image is processed by CNN .in the function of F=C(x) takes an x as an input and produces vector as the output. In general the CNN process step on image is series of layers, where each individual layer is composed of convolution pooling and non-linear activation function. In our case I use activation function is max-pooling and hyperbolic tangent Tanh. So the image is processed by each layer in Convolutional Neural Network is that, C0(S(t))=Tanh(Maxpool(conv(S(t)))). here S (t) is an original image is taken as a input in the first layer .An output feature map from the previous layer .let S=S(1):::S(t) is the video sequence .where t is the length consist of whole body of the person image ,where S(t) is the image at the time. After this each image that is S(t) is passed through CNN to produce the output vector.

$$F(t)=C(S(t))$$

Where F(t) is the output vector is taken out from CNN final layer activation map ,after this I gave an input as a person or object is compared with fully connected network output that is CNN output.

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ARCHITECTURE

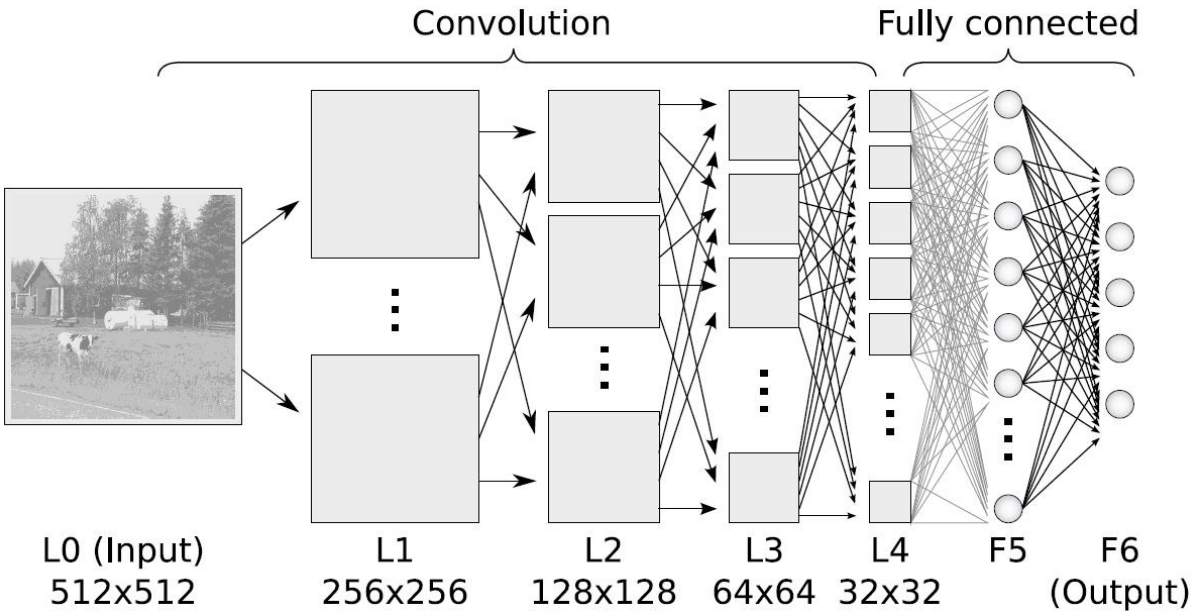

Fig.1.Architecture diagram for Convolutional neural network

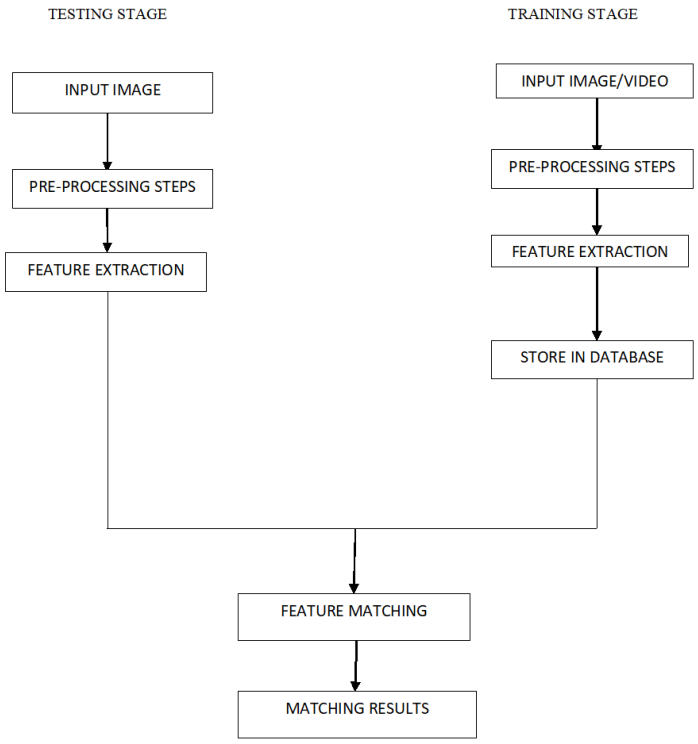

Fig.2 Basic steps involved in person/object re-identification

The Convolutional Neural Network has two stages. There are,

1. Training stage 2. Testing stage

This network is used for faster to train the image .The process is as usual we will connect the input pixel to hidden layer. We cannot connect all the pixel to every hidden layer instead of this we only make connections in all the input images [14].All the image is first connected to the small region. This region is called local receptive field for hidden layers. In training stage it consists of 'N' number of person or object. Each image is added to information related to the genetic structure for a group. Example gender, age etc. For each group K (g) is the attributes male, female, black and white upper body colour.

Lets,

D=F(xi;|1i;:::;| Gi)g Ni=1
Where, D is dataset, xi is i images
1gi=(1gi;1;:::1gi;K(g)) is vector for g group.

The label 1gi:k takes 1gi;K2f0;1g. 1gi;k=1 and 0 respectively.

In this paper i assume that each image have only one specific quality in each group. Here, k(g) is a multi-class problem for each g group so it is reported that sending the CNN parameter for multiple attributes to improve the performance of on attributes recognition. By sharing the CNN parameter and add fully connected layers for classifying attributes in each group [16]. So that we can minimize the soft max loss function. To handle the imbalanced label for this i use weighted cross entropy loss. It represents as different attributes because each attributes in the group. First we would like to combine discriminative subset from all G groups for GCV combination.

Here r is the number of attribute group to be combined. In this case different attributes combination is K(C)=K(1…….K(G)). In each combination is the different in classification laws function for fine tuning.

MODULES

- Video Segmentation
- Feature Computation
- Convolutional Neural Network
- Feature Detection

VIDEO SEGMENTATION:

There are many technologies for image segmentation. For video segmentation less number of techniques is used. If we use this image segmentation method for videos the result will be inaccurate. So here introduce new technique for video segmentation [15]. The first step is taken as a video for input from that the video images are extracted. This video image is sent it to next step.

FEATURE COMPUTATION:

To obtain a fixed size of image during entire sequence and also avoid the noise I use median filter. If consider a gray scale image as a frame pair. Next to calculate gradient and height of the image divided on the exact frame. Also we can obtain magnitude direction of image.

CONVOLUTIONAL NEUTRAL NETWORK:

The input image is given to conventional neutral network to identify person and object. Convolution Neutral Network is a fully connected network. It has many hidden layers and here we are using only three layers. These layers are convolution layers, pool layer and fully connected layers. All the images pass through on the three layers. After reaching fully connected layer the data values are generated for all the video images.

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FEATURE DETECTION:

The image matching is done at this stage. The given input image can be matched with database values and produced an output of person or object re-identification matched person or object can be segmented separately. The image of trained and it produced database value for each image. After data values are compared with each other if its same the results will be the object or person is in the video else the person or object is not in the video.

ADVANTAGE

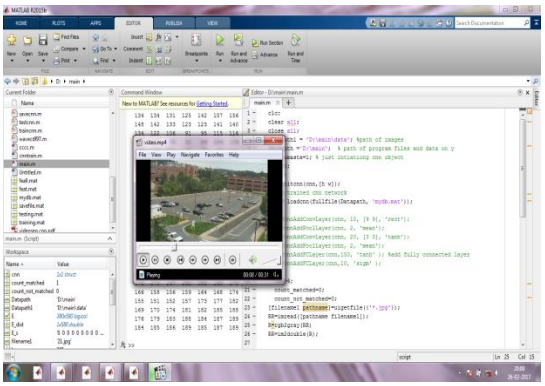
It is easy to identify the person or object in the segmentation of the method is combined colours and motion. So object identification is difficult. In our method we can easily identify the object using Convolution Neural Network technology.It can be find object or person in varies environmental conditions and Accurate results.

APPLICATION

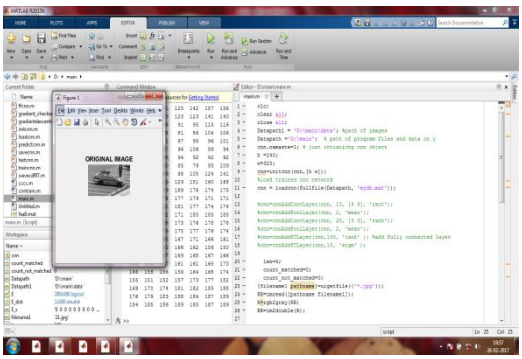
It can be used to find the missing objects. It can also be used in person re-identification and it used for video summarization for detecting misbehaviour detection.

RESULTS

INPUT VIDEO:



INPUT IMAGE 1 :



OUTPUT FOR IMAGE 1:

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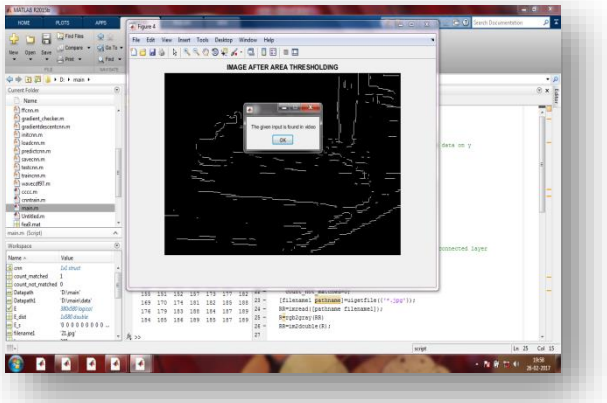
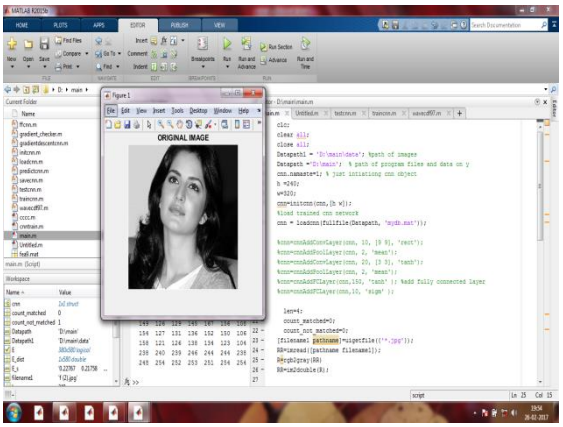
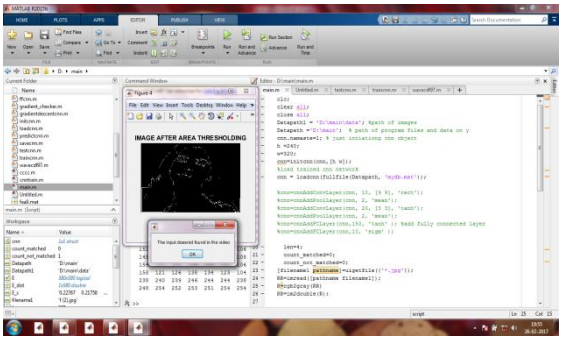


OUTPUT=THE IMAGE IS FOUND IN VIDEO

INPUT IMAGE 2:



OUTPUT FOR IMAGE 2:



OUTPUT=THE IMAGE IS NOT FOUND IN VIDEO

CONCLUSION

In this paper I have introduced Conventional Neutral Network for person or object re-identification. The proposed method improves the quality of frame. There are two inputs such as one is video and other one is image these two inputs are matched with each other and produced output which are if the object or person matches the result. It will be the images are matched otherwise the result is not matched. This project is done by using Conventional Neutral Network.

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