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AUTOMATIC PROFICIENT IMAGE IDENTIFICATION AND SEQUENCE FROM MULTIMEDIA APPLICATIONS

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***Abstract*— The future world depends on latest technologies and innovative ideas. The innovative concepts are helps to upgrade our knowledge. In many face detection concepts are exist among that it may be very fast and robust. In the existing system, long time video files are not processed and compared with others. The captured images are viewed as gray scale images and they are not secure. In this paper Error correction graph matching algorithm is introduced to compare the characters in video files and Average method is introduced for converting gray scale into RGB. The contributions of this work include 1) The sequence of characters in a video file are counted and used to compare it with another video file. 2) While playing the video file, it can be audible and also perform many operations during this process. 3) Use of separate database to store detected images in a secured way. 4) It is also possible to detect and recognize the images from video files which are more efficient and robust. The proposed scheme plays a vital role in real time applications and is easy to capture the sequence of images from various genres of videos.**

***Index Terms*— Image Sequence, Image Detection, Video files, Color Image, Graph matching, Object Recognition, Image tracking, Graph Partitioning.**

I. INTRODUCTION

A. Objective and Motivation

The face detection concept is computer visions that identify the locations and sizes of human faces in color images. It recognizes the face and ignores anything else, such as cars, plant and trees. Face recognition can be regarded as a more general case of face localization. In face localization, the task is to find the locations and sizes of a known number of faces. The face detection methods consist of face process and sequence. It is also the psychological process by which we locate and attend to faces in a visual scene. Research shows that our ability to detect faces is affected by a range of visual properties such as color and orientation. Face detection can be regarded as a specific case of object-class detection. In object-class detection, the task is to find the locations and sizes of all objects in an image that belong to a given class. Examples include upper torsos, pedestrians, and cars. Face-detection algorithms focus on the detection of frontal human faces. It is analogous to image detection in which the image of a person is matched bit by bit. Image matches with the image stores in database. Any facial feature changes in the database will invalidate the matching process.

B. Work Analysis

Character identification, though very intuitive to humans, is a tremendously challenging task in computer vision. The reason is four-fold: 1) weakly supervised textual cues. There are ambiguity problem in establishing the correspondence between names and faces: ambiguity can arise from a reaction shot where the person speaking may not be shown in the frames 1; ambiguity can also arise in partially labeled frames when there are multiple speakers in the same scene. 2) Face identification in videos is more difficult than that in images. Low resolution, occlusion, no rigid deformations, large motion, complex background and other uncontrolled conditions make the results of face detection and tracking unreliable. In movies, the situation is even worse. This brings inevitable noises to the character identification. 3) The same character appears quite differently during the movie.

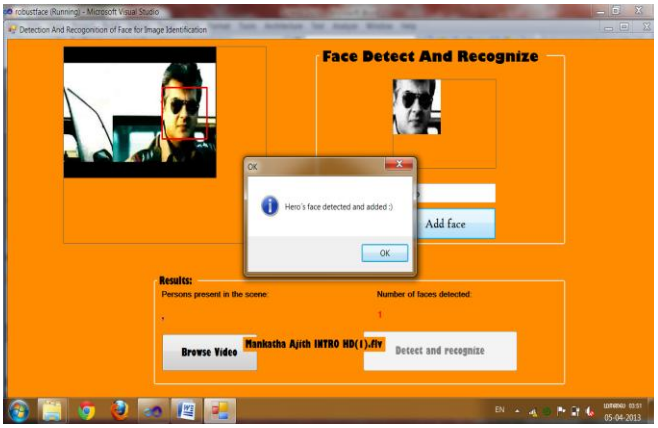

Fig 1 General face Detection Process

There may be huge pose, expression and illumination variation, wearing, clothing, even makeup and hairstyle changes. Moreover, characters in some movies go through different age stages, e.g., from youth to the old age. Sometimes, there will even be different actors playing different ages of the same character. 4) The determination for the number of identical faces is not trivial. Due to the remarkable intra-class variance, the same character name will correspond to faces of huge variant appearances. It will be unreasonable to set the number of identical faces just according to the number of characters in the cast. Our study is motivated by these challenges and aims to find solutions for a robust framework for movie character identification.

II. RELATED WORK

The recognition of the image identification problem is to exploit the relations between videos and images. It has similarities to detecting faces in news videos. However, in news videos, candidate names for the faces are available from the simultaneously appearing captions or local transcripts.

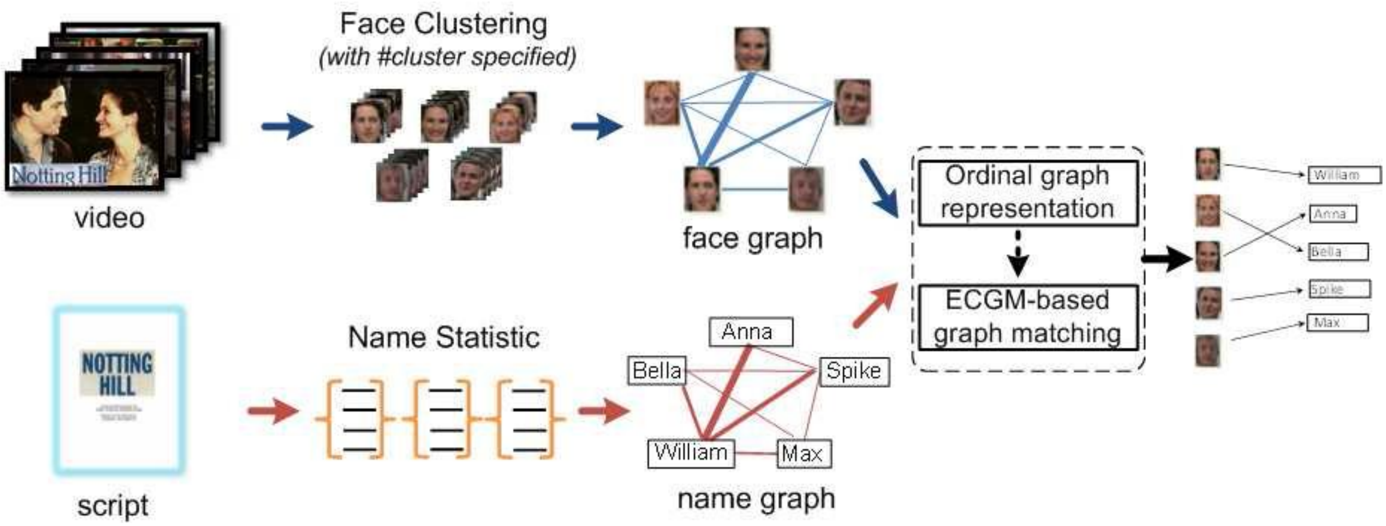

Fig 2 Image Sequence from Multi video streaming

While in videos and movies, the names of characters are seldom directly shown in the subtitle or closed caption, and script/screenplay containing character names has no time stamps to align to the video. According to the utilized textual cues, we roughly divide the existing movie character identification methods into three categories.1) Cast list based.2) Subtitle or Closed caption, Local matching based.3) Script/Screenplay, Global matching based.

1) Category 1: These methods only utilize the case list textual resource. In the "cast list discovery" problem, faces are clustered by appearance and faces of a particular character are expected to be collected in a few pure clusters. Names for the clusters are then manually selected from the cast list. Ramanan *et al.* proposed to manually label an initial set of face clusters and further cluster the rest face instances based on clothing within scenes. An interesting work combining character identification with web image retrieval is proposed in. The character names in the cast are used as queries to search face images and constitute gallery set. The probe face tracks in the movie are then identified as one of the characters by multi-task joint sparse representation and classification. Recently, metric learning is introduced into character identification in uncontrolled videos. Cast-specific metrics are adapted to the people appearing in a particular video in an unsupervised manner.

2) Category 2: The rest of the faces were then classified into these exemplars for identification. They further extended their work in, by replacing the nearest neighbor classifier by multiple kernel learning for features combination. In the new framework, non-frontal faces are handled and the coverage is extended. Researchers from University of Pennsylvania utilized the readily available time-stamped resource, the closed captions, which are demonstrated more reliable than OCR-based subtitles. They investigated on the ambiguity issues in the local alignment between video, screenplay and closed captions. To analyses the video quality and image sizes in before detection process. The detection and recognition of faces from video files for highest quality of unit integration and value based sequence is ready to get at the time. It ensures the process for communicating the future development of values identification. To identify the capture images from database using some notations are calculated. The value of pixel points are measured and analyzed from variant scale.

III. ROBUST DETECTION SCHEME

A. *Overview Approach*

In this paper, we propose a global face detection method based framework for robust object identification. There connections as well as differences between them. According the connections, firstly, the proposed schemes both belong to the global matching based category, where external script resources are utilized. Secondly, to improve the robustness, the ordinal graph is employed for face and character graph representation and graph matching algorithm called Error Correcting Graph Matching (ECGM) is introduced. In according to the differences, in scheme 1 sets the number of sequences when performing face gathered. The object recognition is restricted to have identical number of vertexes with the name graph. While, in scheme 2, no cluster number is required and face tracks are clustered based on their nature data structure. Moreover, as shown in Fig.2 and Fig.3, the scheme 2 has an additional module of graph representation compared with the scheme 1. From this perspective, scheme 2 can be seen as an extension to scheme 1. Fig. 3 illustrates a block diagram of the proposed face detection and sequence of a system. The process must followed to get the sequence in a video files. It should follow the memory size and pixel point calculation among those existing concepts of video streaming. When a file is upload to the module the time the sequence of an images is recognized and detected. It is similar to take the images in a device or camera for value based levels in a sequence of the related video files.

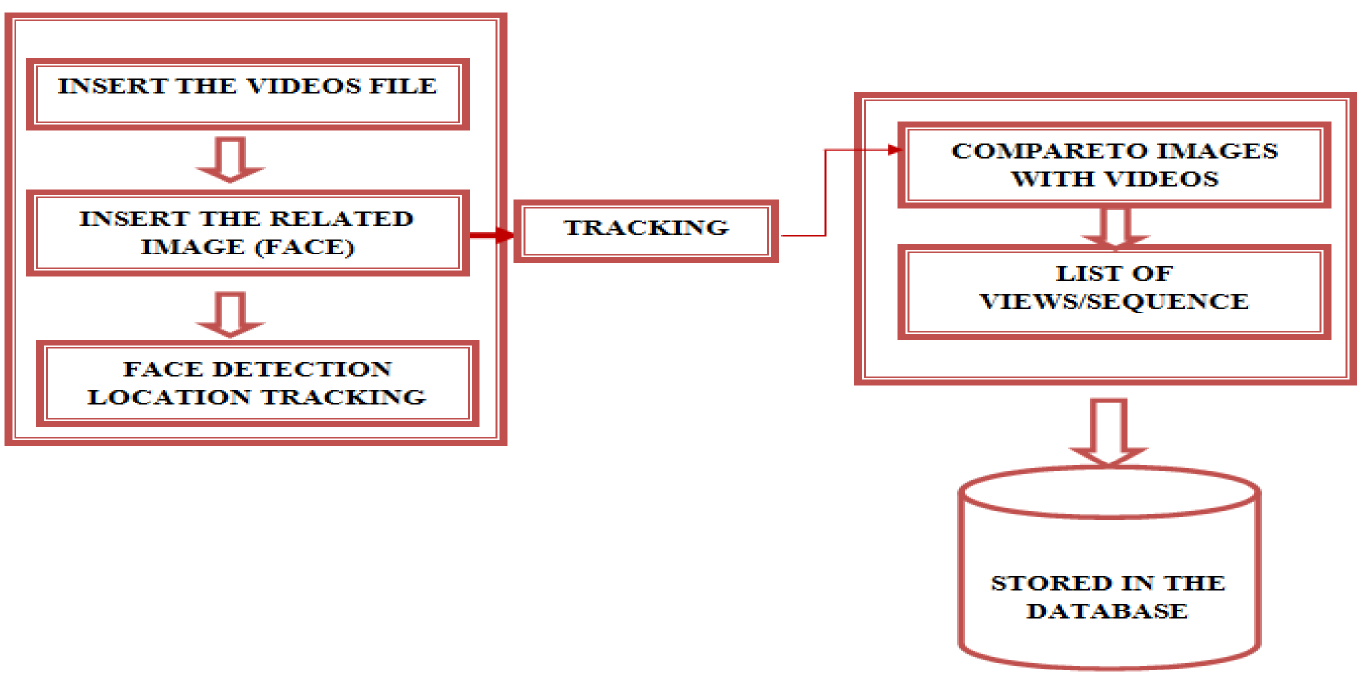

Fig 3 Overview of Detection and Sequence Approach

Scheme 1: The proposed system for scheme 1 has similar to the work for Face detection are gathered using constrain. Moreover the cluster images are recognized and detected from video files. Co-occurrence of names in script and face sequence in video to constitute the corresponding face graph representations and name identifying. We change the traditional view of global matching framework by using ordinal graphs for robust object representation and introducing an ECGM-based graph matching method.

Scheme 2: The proposed system for scheme 2 has two differences from scheme 1. First, no sequence number is required for the face tracks clustering step. Second, since the face graph and name graph may have different number of vertexes, a graph partition method is added before ordinal graph matching. It has extracted the images from video files and also gets the sequence of the images. The compared images are stored in database for right values. In face recognition process is started when the video file is processed.

B. KLT Algorithm for image Detection and tracking

KLT algorithm is used in Computer Vision community to track the features in an image. The KLT tracker is based on the early work of Lucas and Kanade. There are basically two steps which have to take place during feature tracking:

- Detecting Good features to track in a color images.
- Identify the features in an image sequence.

Efficient features are located by examining the minimum eigenvalue method of minimizing the difference between the two windows. Multi-resolution tracking allows for even large displacements between images. When features are lost the algorithm replaces the lost features by finding other new features.

1. Detect a Face

Use the vision.CascadeObjectDetector System object to detect the location of a face in a video frame. The cascade object detector uses the Viola-Jones detection algorithm and a trained classification model for detection. By default, the detector is configured to detect faces, but it can be used to detect other types of objects. To track the face over time, this example uses the Kanade-Lucas-Tomasi (KLT) algorithm. While it is possible to use the cascade object detector on every frame, it is computationally expensive. It may also fail to detect the face, when the subject turns or tilts his head. This limitation comes from the type of trained classification model used for detection. The example detects the face only once, and then the KLT algorithm tracks the face across the video frames.

2. Identify Facial Features to Track

The KLT algorithm identifies a set of feature points across the video files. Once the recognition locates the face, the next step in the example identifies feature points that can be reliably identified. This example uses the standard, "good features to detect" created by Shi and Tomasi.

3. Initialize a Tracker to Track the Points

The feature points identified, you can now use the vision.PointTracker System object to track them. For each point in the previous frame, the point tracker attempts to find the corresponding point in the theestimateGeometricTransform function is used to estimate the translation, rotation, and scale between the old points and the new points. This transformation is applied to the bounding box around the face.

4. Track the Face

Track the points from frame to frame, and use estimateGeometricTransform function to estimate the motion of the face. To created a simple face tracking system that automatically detects and tracks a single face. Try changing the input video, and see if you are still able to detect and track a face. Make sure the person is facing the camera in the initial frame for the detection step.

C. ECGM-based Graph Matching

The ECGM is an efficient tool for graph matching with distorted inputs. It has different applications in pattern recognition and computer vision. In order to measure the similarity of two graphs, graph edit operations are defined, such as the deletion, insertion and substitution of vertexes and edges. Each of these operations is further assigned a certain cost. The costs are application dependent and usually reflect the likelihood of graph distortions. The more likely a certain distortion is to occur, the smaller is its cost. Through error correcting graph matching, we can define appropriate graph edit operations according to the noise investigation and design the edit cost function to improve the performance.

For explanation convenience, we provide some notations and definitions taken from Let L are a finite alphabet of labels for vertexes and edges.

D. Gray-Image Conversion

Here typically two methods are used to conversion of grayscale images into color images.

1. Average Method

The first method is gray-image conversion. The 24-bit color image is averaged to generate an 8-bit gray image X as follows:

$$X=\frac{(R+G+B)}{3}$$

Where R is red, G is green, and B is blue. The converted images are stored in database from memory and processed locations.

2. Average Maximum Color

In the proposed method, color image is analyzed from RGB color space point of view. Each pixel in the image consists of three color channels known as Red, Green, Black components. The range of values of each of this components lies within 0 to 255. Edges exist in a color image where abrupt changes of RGB values occur. So to detect proper edges, first the abrupt color differences in an image must be pointed out. A transformed value for each pixel which converts three component valued pixels into a single valued attribute. This transformation is simply a weighted addition of three components.

$$Pixel(i,j)=2*red(i,j)+3*green(i,j)+4*blue(i,j)$$

The value is calculated and used to analyses the process for face identification concepts.

IV. CONCLUSIONS

The proposed scheme of object recognition and sequence from multi video streaming explains the following 1) Image detection and Sequence from video files. 2) Conversion of grayscale images into color images 3) reduces the time for detection process 4) enable to use controls options and 5) Performs with audible video file. This application can be used to detect and recognize the images from long duration video files.

FUTURE ENHANCEMENTS

To detect and recognize the sequence of images from live video streaming and rectify the problems of twins character in a same video files also to recognize the objects from the shadow in the video files.

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REFERENCES

[1]. Jitao Sang,Changsheng Xu, “Robust Face-Name Graph Matching for Movie Character Identification”, in Multimedia, IEEE Transactions on Image Processing,Volume.14,no.3,pp. 586-596, June. 2012.
[2]. M.Everingham, J.Sivic, and A.Zissserman, “Taking the bite out of automated naming of Characters in TV video”, in Journal of Image and Vision Computing, 2009, pp.545-559.
[3]. Ming Du, Sangaranarayanan A.C, Chellapa R “Robust Face Recognition From Multi-View Videos”, in IEEE Transactions on Image Processing, Volume.23, no. 3, pp. 1105-1117, March. 2014.
[4]. Seung-Hwan Bae,Kuk-Jin Yoon, “ Robust Online Multiobject Tracking with Data association and Track Management” in IEEE Transactions on Image Processing, Volume.23,no. 7,pp. 2820-2833,July.2014.
[5]. J.Sang and C.Xu, “Character-based movie summarization”, in ACMMM, 2010.
[6]. Liang Chao, Changsheng Xu, Jian Cheng, “Robust movie character identification and the sensitivity analysis” in IEEE International Conference on Multimedia and Expo (ICME), July 2011.
[7]. T.cour, B.Sapp, C.Jordan, and B.Taskar, “Learning from ambiguously labeled images”, in CVPR, 2009, pp. 919-926.
[8]. Qinfen Zheng, Chellapa R “Motion detection in image sequences acquired from a moving platform” in IEEE International Conference on Speech and Signal Processing, ICASSP-93, Volume. 5, pp. 201-204, Apr.1993.
[9]. J.Stallkamp, H.K.Ekenel, and R.Stiefelhagen, “Video based face recognition on real-world data, “in ICCV, 2007, pp.1-8.
[10]. Wei-jiang Wang,Wei Zue,Xue-mei Yan “New gray-scale watermarking algorithm of color images based on Quaternion Fourier Transform”, in Third International Workshop on IWACI,pp.593-596,Aug.2010.
[11]. J.Sunitha “A survey on Video-based Face Recognition Approaches”, in International Journal of Application or Innovation in Engineering and Management (IJAIEM), Volume. 3, no. 2, pp. 208-215, Feb.2014.
[12]. Zhaoxiang Zhang, Chao Wang and Yunhong Wang, “Video-Based Face Recognition: State of the Art”, in Biometric Recognition Lecture Notes in Computer Science, Volume. 7098, pp.1-9, 2011.
[13]. Fang Tan, Qing Guan,Sheng Xu, Feng Shi-min, “A method for robust recognition and tracking of multiple objects”, in International Conferences on Communications, Circuit and Systems,pp.464-468,July .2009.
[14]. Kyounghoon Jang, Hosang Cho, Chang-Wan Kim, and Bongsoon Kang, “A Face-Detection Postprocessing Scheme Using a Geometric Analysis for Multimedia Applications”, Journal of Semiconductor Technology and Science, Volume. 13, no. 1, pp.34-42, Feb.2013.
[15]. S.Satoh and T. Kanade, “Name-it: Association of face and name in video, “in Processing of CVPR, 1997, pp. 368-373.
[16]. Jia-Ching Cheng,Moura J.M.F “Capture and representation of human walking in live video sequences”, in IEEE Transactions on Multimedia,Volume.1,no. 2,pp.144-156,Jun.1999.
[17]. http://www.face-rec.org
[18]. http://en.wikipedia.org/wiki/Outline_of_object_recognition
[19]. http://in.mathworks.com/help/vision/examples/face-detection-and-tracking-using-the-klt-algorithm.html

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