

## Face-Name Tracking Analysing System By Cluster Using Constrain K-Means

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**ABSTRACT:** Auto face identification of characters in films has drawn most research interests and led to many interesting applications. Since huge variation in the appearance of each character is found, it is a challenging problem. Existing methods evaluates promising results in clean environment, the performances are limited in complex movie scenes due to the noises generated during the face tracking and face clustering process. This study presents two schemes of global face-name matching based framework for robust character identification. The contributions of this study include: A noise insensitive character relationship representation is incorporated. The study introduces an edit operation based graph matching algorithm. Complex character changes are handled by simultaneously graph partition and graph matching. Beyond existing character identification approaches, we further perform an in-depth sensitivity analysis by introducing two types of simulated noises. The proposed schemes demonstrate state-of-the-art performance on movie character identification in various movies. The project has been developed using Visual Studio .Net 2005 as front end and SQL Server 2000 as back end. C# is used the coding language.

## 1 Introduction

Image processing is processing of images using mathematical operations by using any form of signal processing for which the input is an image, such as a photograph or video frame; the output of image processing may be either an image or a set of characteristics or parameters related to the image. Most image-processing techniques involve treating the image as a two-dimensional signal and applying standard signal-processing techniques to it. Image processing usually refers to digital image processing, but optical and analog image processing also are possible. Digital image processing is the use of computer algorithms to perform image processing on digital images. As a subcategory or field of digital signal processing, digital image processing has many advantages over analog image processing. It allows a much wider range of algorithms to be applied to the input data and can avoid problems such as the build-up of noise and signal distortion during processing. Since images are defined over two dimensions (perhaps more) digital image processing may be modeled in the form of multidimensional systems. Image processing is a method to convert an image into digital form and perform some operations on it, in order to get an enhanced image or to extract some useful Information from it. It is a type of signal dispensation in which input is image, like video frame or photograph and output may be image or characteristics associated with that image. Usually Image Processing system includes treating images as two dimensional signals while applying already set

signal processing methods to them. It is among rapidly growing technologies today, with its applications in various aspects of a business. Image Processing forms core research area within engineering and computer science disciplines too.

### System Analysis Proposed System

In addition to existing system implementation, the proposed system includes identifying face/names for different movies with different character names also. K Means clustering is applied for clustering process. And also, different character names for given face is tracked even if movies vary. Median filter concept is applied to remove the noise either before/after the clustering process.

### Advantages

Not sensitive to noises, since noise removal can be applied either before or after clustering process. Different character name for given face is tracked even if movies vary. Noise removal process is carried out. The sequential statistics for the speakers is also carried out.

### Existing System

The existing system includes clustering faces using K-means, where the number of clusters is set as the number of distinct speakers. Co-occurrence of names in script and face clusters in video constitutes the corresponding face graph and name graph. It modifies the traditional global matching framework by using ordinal graphs for robust representation and introducing an ECGM-based graph matching method. For face and

name graph construction, the existing system represents the character co-occurrence in rank ordinal level, which scores the strength of the relationships in a rank order from the weakest to strongest. The affinity graph used in the traditional global matching is interval measures of the co-occurrence relationship between characters.

### **Drawbacks**

While continuous measures of the strength of relationship hold complete information, but it is highly sensitive to noises. Same character name for given face is tracked even if movies vary. Noise removal process is not discussed. The sequential statistics for the speakers is not carried out.

### **Overview Of Project**

The project proposes a global face-name graph matching based framework for robust movie character identification. Two schemes are considered. There are connections as well as differences between them. Regarding the connections, the proposed two schemes both belong to the global matching based category, where external script resources are utilized. To improve the robustness, the ordinal graph is employed for face and name graph representation and a novel graph matching algorithm called Error Correcting Graph Matching (ECGM) is introduced. Regarding the differences, scheme 1 sets the number of clusters when performing face clustering. The face graph 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 intrinsic data structure.

8-hydroxyquinoline is a well known organic NLO material which crystallizes in an orthorhombic crystal system with noncentro symmetric space group (*Fdd2*) which physiochemical and theoretical properties were already investigated by several researchers. Some of the 8-hydroxyquinoline based NLO crystals are 8-hydroxyquinolinium picrate, 8-hydroxyquinolinium hydrogen maleate and 8-Hydroxy quinolinium 4-nitrobenzoate 4-nitrobenzoic acid [17-20]. In our present investigation 8-hydroxyquinoline and the crystals were obtained by slow evaporation solution growth technique at room temperature. The grown crystals were characterized by CHN analysis, single crystal XRD, powder XRD, FT-IR, optical transmittance, TG/DTA, dielectric, photoconductivity and powder SHG studies and the results were discussed.

### **Module Description**

#### **Add Movie**

In this module, the movie file is selected and added into table. AVI File is selected as input. Media Player control is provided to check that the AVI file is running properly.

#### **Split Into Frames**

In this module, the movie file is selected from table, and split into individual frames and saved as bitmaps. The bitmaps folder in the project is used to save all the frames. The record is saved into 'Bitmaps' folder with movie id and frame id.

#### **Add Title**

In this module, the movie file is selected from table, frame id is selected from the retrieved bitmap frame id is selected and title sentence is added. The character names found in title is added into 'Face Names' table with movie id, frame id and name.

#### **Face Recognition**

In this module, after the movie id selection, from the bitmap frames face area is found out and the details are saved in 'Faces' table with movie id, frame id and face data.

#### **Face Clustering**

In this module, after the movie id selection, faces are clustered such that K Means clustering is applied with 'N' clusters is given as input. Based on the color difference in the bitmap pixels, the face similarity is calculated.

#### **Forming Face Graph**

In this module, based on the faces (multiple characters) appeared in the bitmap frames, relationship between faces is formed. For example, one frame contains Face A, B and C other contains A and C. So A is more related with C and less related B. The edge weight is fixed based on the relationship/ common occurrence between faces.

#### **Forming Name Graph**

In this module, based on the names (multiple characters named) appeared in the bitmap frames title, relationship between names is formed. For example, one frame contains name A, B and C other contains A and C. So A is more related with C and less related B. The edge weight is fixed based on the relationship/ common occurrence between names.

#### **Graph Mathcing**

In this module, matching is done based on common occurrences of faces and names. For example If frame 1 contains Face A, B and C with name X, Y and Z. Then frame 2 contains Face A and C with name X and Z, then it is sure that A and B have the names X and Z. After intersecting all the frames with Face/Name occurrence, we try to match the names with faces.

#### **Input Design**

Input design is the process of converting user-originated inputs to a computer understandable format. Input design is one of the most expensive phases of the operation of computerized system and is often the major problem of a system. A large number of problems with a system can usually be tracked backs to fault input design and method. Every moment of input design should be analyzed and designed with utmost care. The system takes input from the users, processes it and produces an

output. Input design is link that ties the information system into the world of its users. The system should be user-friendly to gain appropriate information to the user. The decisions made during the input design are To provide cost effective method of input. To achieve the highest possible level of accuracy. To ensure that the input is understand by the user.

System analysis decide the following input design details like, what data to input, what medium to use, how the data should be arranged or coded, data items and transactions needing validations to detect errors and at last the dialogue to guide user in providing input. Input data of a system may not be necessarily is raw data captured in the system from scratch. These can also be the output of another system or subsystem. The design of input covers all the phases of input from the creation of initial data to actual entering of the data to the system for processing. The design of inputs involves identifying the data needed, specifying the characteristics of each data item, capturing and preparing data for computer processing and ensuring correctness of data. Any Ambiguity in input leads to a total fault in output. The goal of designing the input data is to make data entry as easy and error free as possible.

#### Add Video

In this input form is used to add the video details to the database table. The video id and the video name are added to the table. All the record details can be viewed using the Grid View control in a form. The details are store to 'video'. The resource details must include which cloud pro

#### 6.4.1. Add frame

In this input form is used to add the resource details to the database table. The resource id and the resource name and form name id are added to the table. All the record details can be viewed using the Grid View control in a form. The details are store 'frame' table. The cloud provider ids are fetched from the 'video' table and any one id is selected as resource type for this record.

#### Output Design

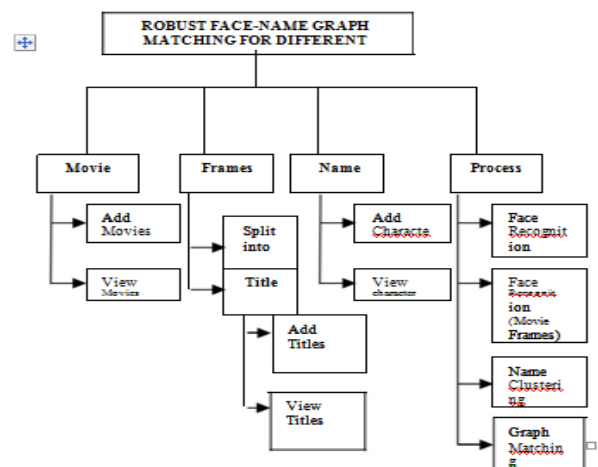
Output design generally refers to the results and information that are generated by the system for many end-users; output is the main reason for developing the system and the basis on which they evaluate the usefulness of the application. The output is designed in such a way that it is attractive, convenient and informative. Forms are designed in Java with various features, which make the console output more pleasing.

As the outputs are the most important sources of information to the users, better design should improve the system's relationships with user and also will help in decision-making. Form design elaborates the way output is presented and the layout available for capturing information.

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### SYSTEM FLOW DIAGRAM



### DATA BASE DESIGN

The most important consideration in designing the database is store the cloud area details in the software application, the database. The main objectives of designing a database are: In a database, information from several files are coordinated, accessed and operated upon as through it is in a single file. Logically, the information are centralized, physically, the data may be located on different devices, connected through data communication facilities. Data integrity means storing all data in one place only and how each application to access it. This approach results in more consistent information, one update being sufficient to achieve a new record status for all applications. This leads to less data redundancy; data items need not be duplicated; a reduction in the direct access storage requirement.

Data independence is the insulation of application programs from changing aspects of physical data organization. This objective seeks to allow changes in the content and organization of physical data without reprogramming of applications and to allow modifications of application programs without reorganizing the physical data. The tables needed for each module were designed and the specification of each

and every column based on the records is provided and details collected during record specification of the system study.

### Table Structure

**TABLE 6.1: ADMIN**

Primary Key: Username

Purpose: This table is used to store the user name and Password details.

S.N	FIELD	DATATYPE	SIZE	DESCRIPTION
1	Username	Varchar	15	UserName Details
2	Password	Varchar	15	Password Details

### System Implementation

When the initial design was done for the system, the client was consulted for the acceptance of the design so that further proceedings of the system development can be carried on. After the development of the system a demonstration was given to them about the working of the system. The aim of the system illustration was to identify any malfunction of the system. After the management of the system was approved the system implemented in the concern, initially the system was run parallel with existing manual system. The system has been tested with live data and has proved to be error free and user friendly. Implementation is the process of converting a new or revised system design into an operational one when the initial design was done by the system; a demonstration was given to the end user about the working system. This process is used to verify and identify any logical mess working of the system by feeding various combinations of test data. After the approval of the system by both end user and management the system was implemented. System implementation is made up of many activities. The six major activities as follows.

#### Coding

Coding is the process of whereby the physical design specifications created by the analysis team turned into working computer code by the programming team.

#### Testing

Once the coding process is begin and proceed in parallel, as each program module can be tested.

#### Installation

Installation is the process during which the current system is replaced by the new system. This includes conversion of existing data, software, and documentation and work procedures to those consistent with the new system.

#### Documentation

It is result from the installation process, user guides provides the information of how the use the system and its flow.

#### Training and support

Training plan is a strategy for training user so they quickly learn to the new system. The development of the training plan probably began earlier in the project. The best-suited application package to develop the system is Visual C#

### Conclusion

In this thesis proposed system describe the two schemes are useful to improve results for clustering and identification of the face tracks extracted from uncontrolled movie videos. From the sensitivity analysis, we have also shown that to some degree, such schemes have better robustness to the noises in constructing affinity graphs than the traditional methods. A third conclusion is a principle for developing robust character identification method: intensity alike noises must be emphasized more than the coverage alike noises. At present, the faces are clustered, graphs formed for name and faces, then graph matching is carried out. The noise removal process is also carried out and faces are effectively clustered. Different movies are taken and so list of names for single face (occurred in both movies) can also found out.

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