

Inpainting on Static Object of Video and Maintaining Spatial Secular Stability

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Abstract: Video inpainting is an important video improvement technique to reconstruct or make up the video. It has been utilized by world to convert damaged or missing videos into proper video. It includes two main important key static completion and frame completion. In static completion it recovers missing static information in damaged area to maintain good temporal continuity. Whereas in case of frame completion it repairs damaged frames to produce visually pleasing video with good spatial continuity and stabilize luminance. We can apply this algorithm on different types of video clips. This paper describes and it also provide an initial solution to a video editing task i.e. video inpainting. In this report, we propose an selective inpainting pipeline which can fundamentally increase the running of video inpainting from hundreds to thousands times faster than image inpainting, making the process applicable for practical usage. Most of video editing can be done manually but it takes more time to give output so time as well as money will be wasted. so to save money and time anyone can use such a algorithm which is very interesting and also helpful to save our money as well as time.

Index Terms— Image enhancement, Static completion, Occlusion object, missing data, patch pasting, filling in, frames completion.

I. INTRODUCTION

Video inpainting is an important video enhancement technique used to facilitate the repair or editing of digital video. It is one of the most challenging techniques, which helps users to remove undesirable objects and repair areas where content is damaged. Video inpainting is a technique which is especially useful in variety of scenarios, when user wants to capture an image which is occluded by a cyclone, and sometimes it may happens that the users are not allowed to cross the cyclone. In such a case for e.g. if user want to capture a tiger with the help of digital camera who is closed in cage, then natural solution of such a problem is nothing but capture a image as it is and restore it for post processing algorithm for cyclone removal. With little additional effort by using video inpainting technique, users are able to obtain cyclone free video.

The goal of video inpainting is to automatically restore them and return cyclone free video, for those video which

is occluded by cyclone. In the image processing and computer vision world, also in media entertainment; advanced image and video editing techniques are common. In some applications like, film restoration, professional post production, in cinema and video editing for personal use, high quality video inpainting plays an important role.

Video inpainting algorithm based on two categories-

- A. Object based
- B. Patched based

These categories explain in detail as below:-

A. Object based: - Object based algorithm usually segments the video into moving foreground object and background objects. By using separate algorithm, these segmented images sequences are then inpainted. The moving objects are often copied into the occlusion as smoothly as possible, whereas background is often inpainted method.

B. Patch based: - Patch based algorithm are based on the idea of copying and pasting of small video “patches” (rectangular cuboids of video information) into the occluded area. With the help of such a patches we get the knowledge about encoding local texture, structure and motion, so “patch” plays an important role in case of patch based method.



Fig.1 without inpainting image



Fig. 2 with inpainting images

Especially, object removal is one of the key techniques in post-processing. If an unwanted object is captured in a video sequences accident or if the object is decided to be unnecessary, we need to erase the object from the sequences. Therefore, video inpainting technique should remove the object and replace it appropriate object.

As shown in fig 1 and fig 2 we can observe how inpainting works on image. Fig 1 shows the image without inpainting which consist of occlusion object also which we want to remove. Fig 2 shows with inpainting result in which occlusion object totally removed by using video inpainting terms. It works very effectively and high speed also.

I. BLOCK DIAGRAM

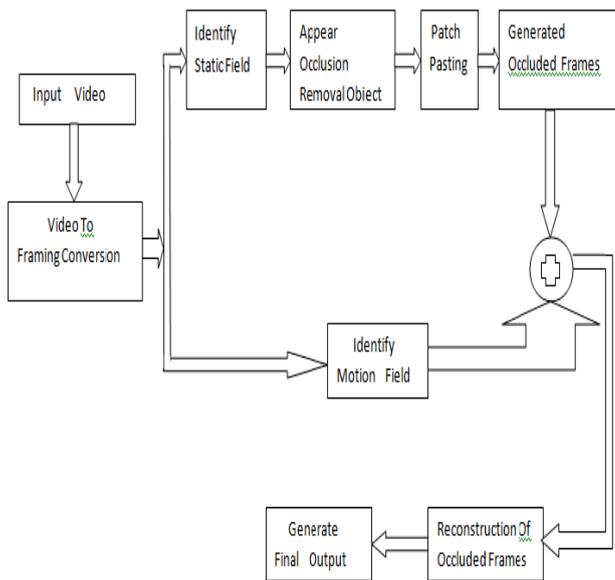


Fig. 3 Block Diagram

Block diagram description-

Basically, block diagram consists of 3 steps these are nothing but the static map construction, appear occlusion object and frame completion. Static map construction is a pre-processing procedure. In this procedure we begin by manually labeling damaged area in the frames. After that procedure of deciding occlusion object came in picture occlusion object is nothing but the unwanted object. Last process is nothing but the frame completion in which patch adjustment mechanism to paste data from neighbouring or current frame onto the missing areas.

As shown in figure (3), it suggests the algorithm of our project. It works as follows: - The first step to doing video inpainting is that select a video which will act as and an input video. After that convert that video into numbers of frames in such a way that at the end we get original video sequentially with occlusion removal object. Numbers of frames are depending on size of input video. Then separation of static field and motion field were introduced. Take static field frames for further operation. Keep motion field frames as it is. Next step is nothing but to decide the occlusion object which we want to remove, which is unwanted object. Convert that object into the black and

white frame. Then observe all the frames, which we got after video to framing conversion operation.

After selection of frames in which we observed occlusion object. After that patch pasting procedure will come in picture. Patch is nothing but the rectangular cuboids in nature fill the blank space after removing occlusion object by copying the nearby pixels. Generate occluded frames. Then combine motion field and occluded frames and reconstruct them. Finally we get output video which is fence free.

II. ALGORITHM

1. Start
2. Video acquisition
3. Convert into frames
4. Read damaged image and its mask image
5. Clear damaged area in the original damaged image
6. Based neighborhoods do isotropic diffusion inside of damaged area.
7. Keep step 6 until the result satisfies some desirable condition.
8. Retrieve the result of step 7 and let it be the restoration.
9. Reconstructed video
10. Stop.

III. CONCLUSION

We have worked on a static video inpainting algorithm for digitized aged films. The algorithm consists of two steps: static completion and frame completion. In addition, firstly constructs a motion and static map to record the static information in undamaged source areas. The static completion procedure restores the motion in each missing blobs for completion order find out by the priority computation step. The completed static map is used to improve the temporal continuity and find the best-scrap result for inpainting on damaged areas. The frame completion procedure seamlessly repairs all the missed blobs and reduces that area intensity level of each video frame.

At the time of frame completion phase, we use to stabilize the global and local luminance and after processing obtain better regenerated videos. Our results show that our proposed algorithm is better than previous algorithms in dealt with videos contained stable motion and luminance, it produce good results. In addition, the proposed inpainting process recovers missing areas of videos by using undamaged information from all frames sequence whenever possible. The approach of this paper eliminates the block reuse rate and the reconstructed frames in videos are close to original state.

First, in video inpainting method conclude that it is very difficult to produce a result of large area motion completion and frame completion. If the damaged content covers a large area in each frame, visual defects may appear in continues video, as most of the useful reference

data can be obtained from neighboring areas. Second, since the algorithm uses fixed-scaling patch in the local static estimation and all frame completion procedure, it might not be able to work on videos with zoom-in/out camera different motion

IV. RESULT

Fig. 4,5,6,7,8 frames show the result. Fig 4 shows the occlusion object which we want to remove from our original video. Fig 5 and fig 6 show 2 frames which are selected from total frames which we got after video to framing conversion.

Whereas fig 7 and fig 8 show the output frames which are free from occlusion objects by using video inpainting.



Fig.4 occlusion object of video.



Fig. 5 original video frame.



Fig. 6 original video frame.



Fig. 7 output video frame.



Fig. 8 output video frame.

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