

International Journal of Innovative Research in Computer and Communication Engineering

(An ISO 3297: 2007 Certified Organization)

Vol. 3, Issue 12, December 2015

Survey of Different Image Inpainting Methods

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ABSTRACT: our life's important part is Image. The image inpainting or video inpainting is useful to remove the unwanted parts or holes from the image without changing the original content of image. In this paper we have done a survey of different image inpainting methods and watermarking method. We have used super resolution image inpainting method on the video inpainting which can easily remove the holes from the images. Our method shows the accurate output as compared to the other inpainting methods. Due to this our system uses the super resolution algorithm which can inpaint single image which is nothing but the video frame extracted from the video. In this project we have to apply QR based video watermarking on the inpainted video file. For watermarking we have used DCT algorithm.

KEYWORDS: Inpainting, Discrete wavelength transform, QR code single-image super-resolution.

I. INTRODUCTION

Today, there are number of researches are performing on the images and for that research field, image has become useful phenomenon. For capturing memories, the images are only used in old days. But now images have changed their face. There may be two-dimensional, or three-dimensional images. The photos or videos may be captured by using digital or analogous cameras or other capturing devices. Today, images can be very helpful for encryption, processing, authentication, sharing etc. purpose. The main purpose of videos or images is to store the memories of some important moments. In image, due to extra part or distortion sometimes useful images get discarded or deleted. For restoring image or painting seems as natural as its original version a super resolution (SR) algorithm is very useful for guessing and filling in the lost image information. By using image inpainting on video we have to remove the target object from the video file. To recover the selected part from the image we need to select the area to inpaint and then pass particular frame to the super resolution algorithm. For removing the objects which are not required, the Exemplar-based inpainting is very useful. There is more efficient algorithm is a Super-resolution algorithm which can produce very efficient output as compared to other inpainting algorithm.



Fig. 1. Before and after inpainting

Inpainting was used for scratch removal. The removal of object, text and other automatic modification of images are included in the next applications. To remove objects from images and fill the hole by taking information from neighborhood is the process of object removal. There are number of methods to removing the object from the image.

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Even we can remove the object by using paint software. Also there are other software's which can easily remove the object from image.

This technique observe the image and start replacing the selected part from left to right. Here some automatic image inpainting methods are there. This play an important role by the image inpainting technology in computer graphics and has many applications such as old films renovation, remove object from photos and videos. This method try to replace the unwanted part of image by using different restoring techniques. So by using image inpainting method one can replace the original image part which are related to the other parts of images or it may be different than the image part.

To improve the image quality from remove-undesired object, there varies the reason behind region completion varies. The object removal starts with find the undesired points or pixels, making the area where the object previously occupies a hole. These hole can be fill up with the help of graphical holes filling technique.

From the LR HR method we are using the dictionary method in which pixels can be obtained from the dictionary. The image pixels can be removed with exact matching pixels from the dictionary database. The super resolution method use the Bergman iterations technique to recover the parts from the image. The HR image is estimated with the height and width of image. There is proposed a new regularization method which is based on multi scale morphological filters.

II. STUDY OF DIFFERENT METHODS

To get idea about different kinds of inpainting technique and their work we have made some literature survey as follow:

The existing inpainting technique and their work are shows. In this section. There are two techniques off this system which are the diffusion based or the exemplar based techniques. Because of it is having some limitation, it will be help to the development of hierarchical approach of super-resolution based inpainting.

A. Image inpainting:

For the perfect and clear image that image inpainting is shown in this paper. And it will be used in patched based inpainting not suitable for high quality image. In the image on which the inpainting algorithm is to be apply is selected here manually by the user. Here this area is marked as the sigma notation. Masking on image is denoted by sigma.

In this the masking is removed by using efros and leungs algorithm. This method is responsible but this feeling is not reasonable for filling the losses inside the image [1].



Fig. 2. Restoration of a colour image and removal of superimposed text

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B. Vector-valued image regularization with PDEs:

A common framework for different applications. Here for images diffusion elimination, the vector valued algorithm is used. As minimization of functions, expression divergence, and laplacians the image is passed through it. To inpaint the image this uses mathematical formulae, but it is not efficient for representing the flows of large image distortion [2].



Fig. 4. Image inpainting using PDE

C. Variational restoration of non-flat image features: Models and algorithms:

Here with an increased priority term which defines the filling sequence of patches in the image the author had states a novel exemplar based Image Inpainting method. Image patches inpainting method is based on patch generation from source region to target region by propagating. This method uses a diffused PDE to constrain the processing order; so, it has a good property of preserving the linear structure. Here by the local pixel information the size of exemplar is dynamically calculated; by the PDE the block and seam effects are removed. As exemplar-based model could not be used for complex geometric structures completion, a bi-directional diffused PDE adopts by the novel model to assist the completion procedure [3].

D. Fragment-based image completion

For completion of image by example fragments this method is used that interleaves a smooth approximation with detail completion. The unknown region iteratively approximates by our method and fills in the image by adaptive frames. It fills the image by a combination of fragments under combinations of spatial transformations. Thus, in the low guessing areas by applying a simple smoothing process an approximation is generated. To the other structure there is classification of the pixel that will be agrees with the part of the image which is we have high confident.



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Fig. 5. Algorithm for fragment based inpainting

In our paper with the studies of image fragmentation present an iterative process that interleaves smooth reconstruction. For guide the completion process it iteratively generates smooth reconstructions [4].

E. Anon-hierarchical procedure for re-synthesis of complex texture:

For the output image is described, a selecting an ordering procedure which large complex features of the input transfers. Even if there are assumed for reproducing large features this procedure is capable with the interaction with the nearby pixel. In the output texture, the process can be change to allow clarification of the replacement of particular features [5].

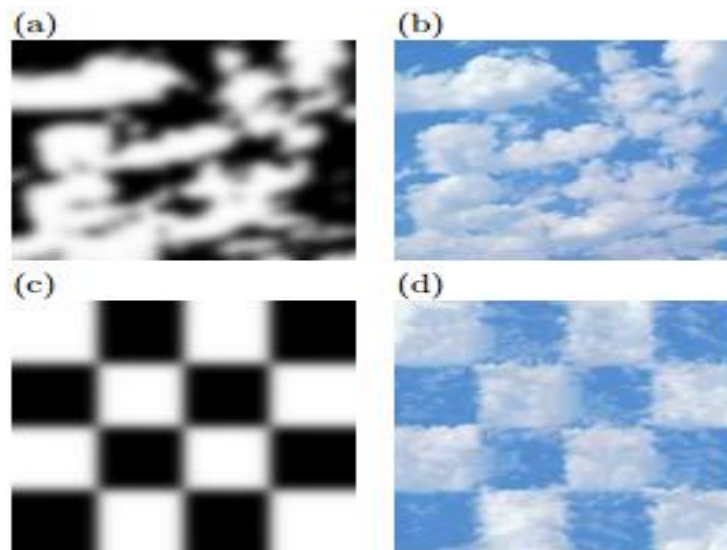


Fig 6. Constraining a cloud texture to a checkerboard pattern. Input map (a), input texture (b), output map (c), and output of the extended synthesis procedure (d).

By a single perceptually intuitive parameter the degree of randomness was controlled. As possible as much local structure are preserving by the method and there produces good results for a wide variety of synthetic and real-world textures [6].

III. CONCLUSION AND FUTURE WORK

In our study we are studied different method of image inpainting by using image inpainting and applying video watermarking on it. For giving better output using this inpainting method is and by finding exact match of the pixel, it overcomes the limitations of the all existing work done by previous authors. For filling the gaps in the image it uses the super resolution algorithm. Here it can result in better and efficient output because multiple Image inpainting techniques combine.



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