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RESEARCH ARTICLE

Video Inpainting Using Image Inpainting

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Abstract— The important part in our life is Image. We can remove the unwanted part of image without disturbing its overall structure using image inpainting. The inpainting of the low resolution images are simpler than that of the high resolution images. In this system different super resolution image inpainting methodologies contains low resolution image and then to form the highly in painted image results of all these methodologies are combined. For this reason for inpainting of single image our system uses the super resolution algorithm which is responsible.

Keywords— "Exemplar-based inpainting, single-image super-resolution, Texture synthesis by non-parametric sampling, Image Inpainting, PSNR- Peak Signal to Noise Ratio"

I. INTRODUCTION

For many research field Image has become useful phenomenon. In old days images are only used for capturing memories. But now images have changed their face. Images may be two-dimensional, or three-dimensional. They may be captured by optical devices – such as cameras, mirrors, and lenses. Today, for encryption, processing, authentication, sharing etc. purpose images can be used. But the main aim of image is still being preserve i.e. to store the memories. Due to extra part or distortion in image sometimes useful images get discarded or deleted. To restored image or painting seems as natural as its original version a super resolution (SR) algorithm is used to guess and fill in the lost image information. First using inpainting the object in the required target area is removed. To recover details on missing areas Result gain is given as input to a super-resolution algorithm. Exemplar-based inpainting is used to remove objects that are not required. Since inpainting produces a low resolution image A Super-resolution algorithm is more efficient Initially for scratch removal inpainting is used. The next applications include removal of object, text and other automatic modification of images. The process of object removal is to remove objects from images and fill the hole by taking information from the surrounding area pixels. Replacing the corrupted part of the image by using the various effective image inpainting techniques which can able to fix and recover the small defects occurring inside the image is the image inpainting process.

The image which is not recognize by the observer because this technique do changes in the image. Here for automatic inpainting of digital image we introduce an algorithm, and replicate the basic techniques used by existing restoration methods. In computer graphics the image inpainting Initially for scratch removal inpainting is used. The next applications include removal of object, text and other automatic modification of images. The process of object removal is to remove objects from images and fill the hole by taking information from the

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The image which is not recognize by the observer because this technique do changes in the image. Here for automatic inpainting of digital image we introduce an algorithm, and replicate the basic techniques used by existing restoration methods. In computer graphics the image inpainting technology play an important role and has many applications such as old films renovation, object removal in digital photos, coding image and transmission. Using the background information in a visually possible way this method restores lost/selected parts of an image. So the use of image inpainting is to recover the original image as well as to create some image that has a close appearance with the original image.

Fig.1 Before and after inpainting.

The exemplar based SR, correspondences between HR and LR patches are learned from a group of HR-LR patches known as Dictionary and then to recover its higher resolution version it applied to a low resolution image. As a deploring problem and solve the inverse problem using Bergman iterations SR method consider Super Resolution image reconstruction. The HR image is estimated based on some prior knowledge about the image in the form of regularization. Based on multi scale morphological filters A new regularization method is proposed.

II. LITERATURE REVIEW

This section shows existing inpainting technique and their work. The diffusion based or the exemplar based techniques are two techniques off this system. It leads to the development of hierarchical approach of super-resolution based inpainting because of It is having some limitation.

A.M. Bertalmio, G. Sapiro, V. Caselles, and C. Ballester, "Image inpainting,"[1]

This paper shows for filling the some loosed portion of the image that image inpainting is only used. But for high quality images this method is not suitable. It uses patch based inpainting. The area at 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.

Fig .2 Traditional image inpainting.

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

B.D. Tschumperlé and R. Deriche, "Vector-valued image regularization with PDEs: A common framework for different applications [2].
Here for eliminate the diffusion in image vector valued algorithm is used. As minimization of functions, expression divergence, and laplaciouns the image is passed through three steps named. To in paint the image this uses mathematical formulae, but it is not efficient to represent the flows of large image distortion.

Fig.3. Image inpainting using PDE.

C.T. Chan and J. Shen, "Variational restoration of non-flat image features: Models and algorithms,"[4]
Here with an increased priority term which defines the filling sequence of patches in the image the author had states a novel examplar based Image Inpainting method.
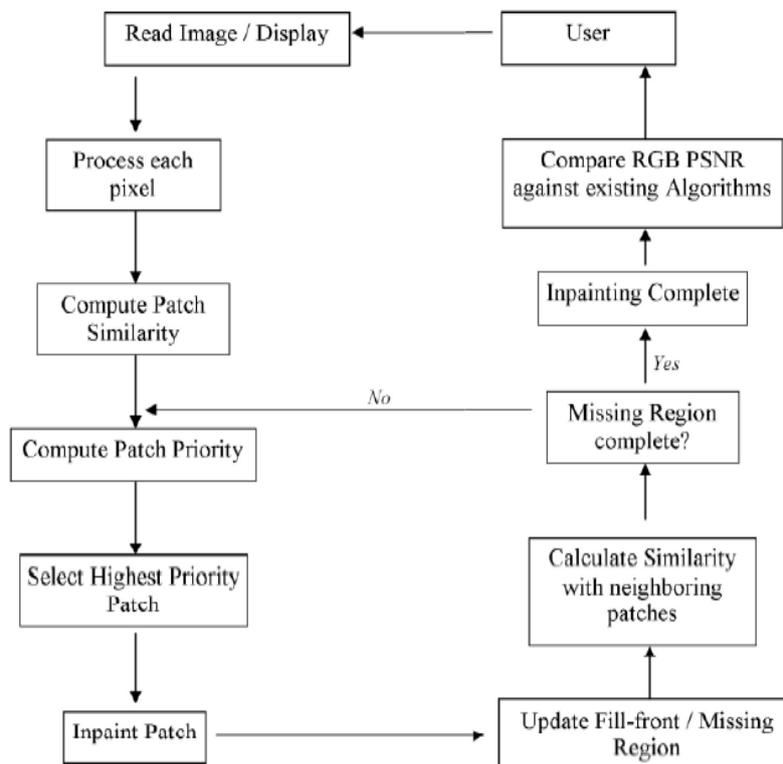

Fig.4. Examplar based inpainting

By propagating the image patches Inpainting method is based on patch generation from the source region into the interior of the target region patch by patch. This method uses a diffused PDE to constrain the processing order; so, it has a good linear structure preserving property. Here by the local pixel information the size of exemplar is dynamically calculated; the seams and block effects are removed by the PDE. Because for complex geometric structures completion the examplar-based model could not be used, the novel model adopts a bi-directional diffused PDE to assist the completion procedure.

D.I. Drori, D. Cohen-Or, and H. Yeshurun, "Fragment-based image completion,"[5]
By example fragments this method is used for image completion that interleaves a smooth approximation with detail completion. Our method iteratively approximates the unknown region and fills in the image by adaptive frames. It fills the image by a combination of fragments under combinations of spatial transformations. It follows the principles of figural simplicity and figural familiarity. Thus, an approximation is generated by applying a simple smoothing process in the low guessing areas. It is a classification of the pixels to some underlying structure that agrees with the parts o1f the image for which we have high confidence.
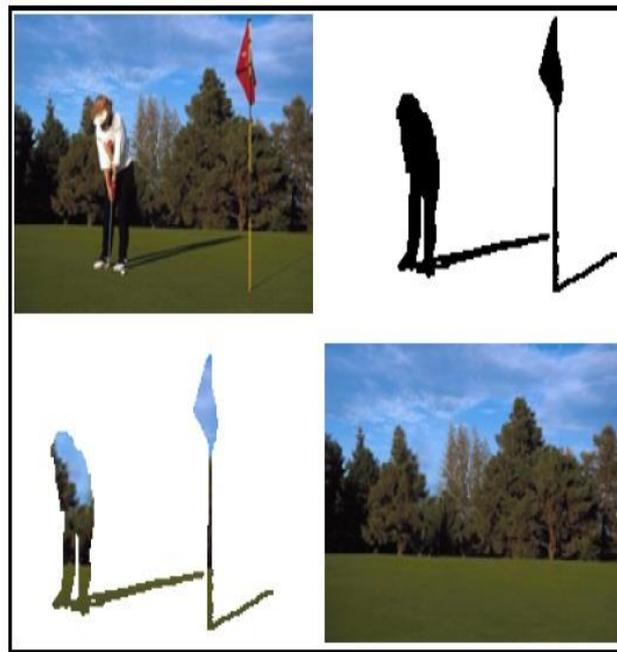

Fig .5 Algorithm for fragment based inpainting.

This paper present an iterative process that interleaves smooth reconstruction with the synthesis of image fragments. It iteratively generates smooth reconstructions to guide the completion process.

III. PROPOSED SYSTEM

Here we are going to apply several number of technic. Finally to produce output the combination of all the result is generalized. Then the under separate super resolution method output produced is pass. As input either dictionary values or adjacent values Super resolution algorithm takes two values. During the scanning of the input image are known as dictionary values the values which are store in the database. And values which are calculated by the analysis of the all the adjacent pixel to that pixel to be examine are known as neighborhood values.

The super resolution algorithm search for pixel which can be best fit into the lossy area of the image which results to the efficient method output.
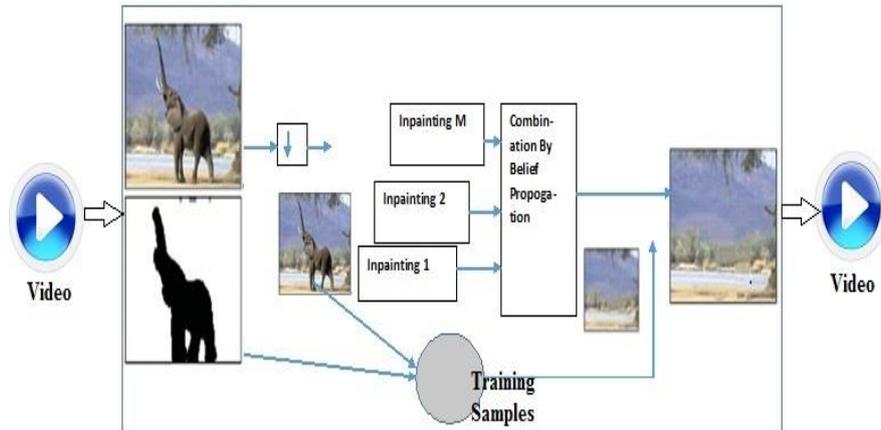
Fig.6. System Architecture

Template matching, non-local method, negative matrix factorization are the propose methodology's three basic techniques. For finding small parts of an image Template matching is a technique in digital image processing which match a template image. Non-local means is an algorithm in image processing for image de-noising. Which take the mean value of a group of pixels surrounding a target pixel to smooth the image.

IV. ALGORITHM

1.Register the LR images.
2.Guess the HR image F().
3Iteration n:
Simulate the imaging process to create g(k) from F().
Compare and g (kn) & g (k).
Correct F() in the direction of the error.
4.Output F().

V. CONCLUSION

This inpainting method is able to give better output and it has ability of overcoming the limitations of the all existing work done by previous authors by finding exact match of the pixel. It uses the super resolution algorithm to fills the gaps in the image. Here it can result in better and efficient output because we are combining multiple Image inpainting techniques.

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