PROJECT PROPOSAL

Project Id: 32

Project Name: Image Inpainting

Github link: https://github.com/unatsharma/DipProject.git

Team Member: Shoeb Siddiqui 2018701017, Sowmya Aitha 2018702007, Tanu Sharma 2018702012

Goal: Restoration of damaged images and removal or replacement of selected objects from an image

Problem Definition:

Image inpainting is introduced to achieve the following:

1) Restoration of old and damaged photographs

2) Removal of superimposed text like dates, subtitles etc on images

3) Removal of entire objects like wires from images

The algorithm automatically fills the marked regions with the structure of their surroundings. The structure of the area surrounding the marked region is continued into the gap (i.e., marked region) and different regions inside marked region are filled with color matching that of the boundary of marked region.

The images are first preprocessed to mark the regions to be inpainted. This step is done manually using some tool like MS Paint. The image is then smoothened using anisotropic diffusion such that it minimizes the influence of noise on the estimation of the direction of the isophote i.e., line or connecting points where the intensity of light is same, arriving at the boundary of the marked regions. Then the marked region in the image is filled iteratively using the information from the surroundings. After some iterations of inpainting, few times anisotropic diffusion is done so as to periodically curve the lines.

Paper referred: 'Image inpainting by Bertalmio and Sapiro'

Results:

Image inpainting will be applied to restore old photograph, for removal of text from a given image and for removal of line from an image.

Source of images: internet

Team Member Task:

Tasks -

1) Anisotropic diffusion (TANU SHARMA) - Writing algorithm for anisotropic diffusion so as to ensure correct evolution of the direction in which the information is to be propagated.

2) Finding the text regions to be inpainted (SOWMYA AITHA) - Writing suitable text detection algorithm and providing the suitable mask for further image inpainting.

3) Propagation of suitable information in suitable direction (SHOEB SIDDIQUI) - Finding information to be propagated and the direction in which it is to be propagated for image inpainting.

Project Timelines:

30/10/2018: Analysis of all the algorithms to be implemented , Step 1 and Step 2

14/11/2018: Step 3

23/11/2018:Merging all the algorithms to get the final inpainted image