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The Best Browser Extension for Image Resizing

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ABSTRACT

A typical method of content-aware image resizing is known as "seam carving," which continuously removes low-energy seams without taking the image's overall visual impact into account. Computational power is required. His ROI occasionally has unavoidable seams that cause the ROI geometry to be off. Seam carving cannot be sustained by low energy ROI. We suggested a piecewise method that can keep the ROI low-energy and reduce shape distortion. Algorithms in parallel can increase speed. By segmenting photos in addition to interactive images and automatically finding ROIs using saliency maps, it is further optimised. For modifying structural deformations, it is hybridised with a shift map editing technique.

keywords: ROI - regions of interest, saliency maps, displacement maps, oPSC - optimal piecewise seam cutting.

INTRODUCTION

Due to the market's overabundance of display devices with various architectures and resolutions, image retargeting is becoming more and more popular. The goal when resizing a picture for retargeting is to keep the aesthetically appealing portions of the image. As a

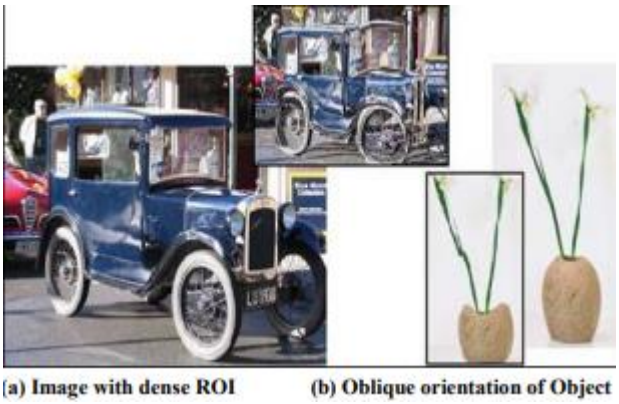
content-aware alternative to conventional image resizing techniques like scaling, cropping, and warping, which are unsuitable for image improvement, seam carving [1] has lately grown in favour. increase. Different scaling methods, such as Non-Uniform Scaling and Stretching [2] and Fisheye View Warping [3], share the same shortcomings as scaling. The outcomes of seam carving, scaling, cropping, and warping are contrasted in Figure 1. To preserve the area of interest, seam carving reduces the size of the image and removes distracting pixels (ROI). However,

WORKING OF PROJECT

By deleting or duplicating a significant portion of the image's seams, or low-energy pixels, seam carving resizes the image. In a picture, a seam is an ideal, 8-connected, monotonic route of pixels running from top to bottom (vertical seams) or left to right (horizontal seams). Such removal or insertion of seams does not draw much visual focus. Cutting and pasting seams repeatedly alters the image's aspect ratio as well as its orientation. Image energy function defines the pixel optimality. Seam cutting has certain downsides despite being more effective than other conventional ways of image scaling. There are several restrictions, as indicated below.

I Without taking into account the quality of the resulting image, seam carving gradually removes or adds low-energy pixels until the target image size is obtained.

EXAMPLE OF DIAGRAM



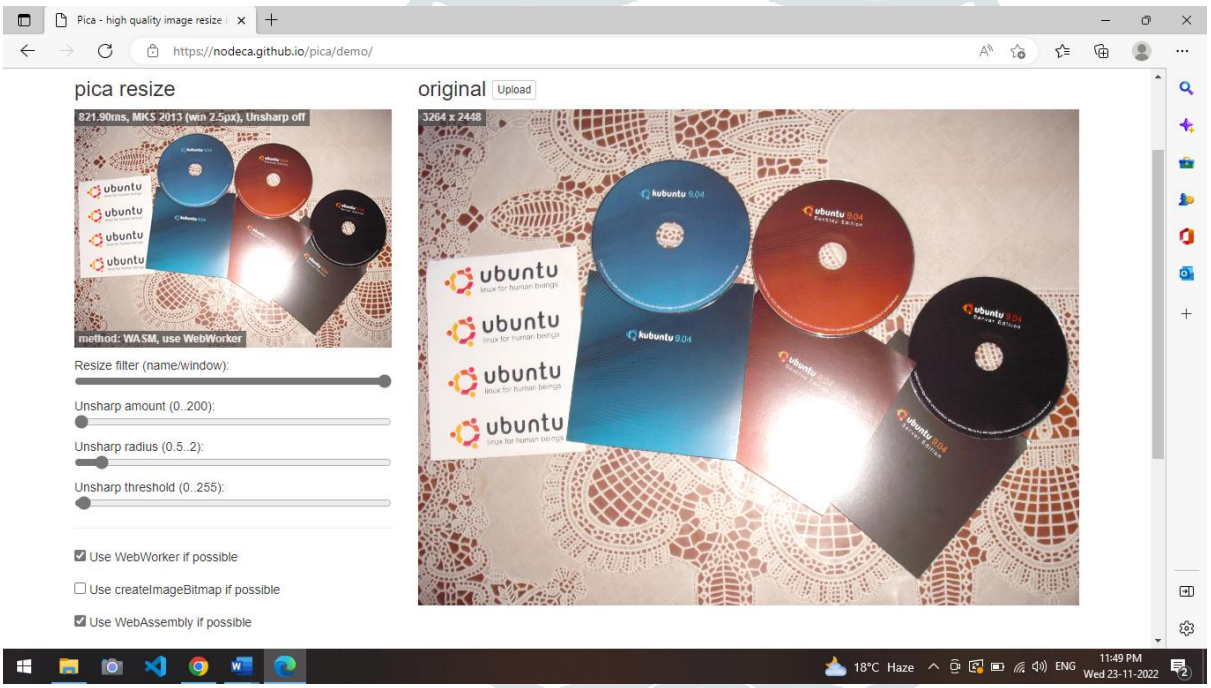
(a) Image with dense ROI (b) Oblique orientation of Object

Fig. Diagram of Proposed System

METHODOLOGY

The user can seam each part in the proper proportions using the piecewise technique, which divides the image into many segments. The direction of the seam depends on the segmentation direction (vertical or horizontal). The image is divided in a specific direction, and the user interactively chooses some spots on the image to designate the segment boundaries (Xmin, Xmax/Ymin, Ymax). There are v subarrays in the image matrix Inxm. Segment numbers (Gk) are gradually assigned. Additional restrictions placed within the segment bounds are used to calculate seams. The user controls how many seams are permitted in each segment. In the opposite direction from the stitching direction, the design is scaled. In the event that vertical segmentation is chosen, the image will be divided vertically.

MODEL OF PROJECT



CONCLUSION & FUTURE SCOPE

In terms of computing time and output quality, our piecewise strategy appears to perform better than other strategies currently in use. The distortion brought on the object warping is eliminated through deft segmentation and shift map modification. keeps ROI low on energy. However, to locate ROIs that are less pleasing to the eye, user interaction is necessary. The saliency map automatically identifies ROIs that are visually striking. For size variations, calculating the forward energy performs better than using the energy function from [1]. The outcomes of image resizing are contrasted with those of various other resizing strategies in Figures 7–10. The outcomes of enlarging the photographs are compared in Figure 11. As can be seen in I to (iv), our method has various drawbacks, some of which can be overcome by

displacement mapping after the shrunk images have been processed. I Image segmentation in both directions afterward.

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