International Journal of Advanced Research in

Computer Science Engineering and Information Technology

Volume: 1 Issue: 1 06-Jun-2013,ISSN_NO: 2321-3337

IMAGE OBJECT PARTITIONING USING CUE POINT TECHNIQUE

Aishvarya Sri.K.S, 4th
year-CSE,
P.B.College of Engineering,Chennai, Tamil nadu,India
aishvaryasri_cse@yahoo.com

Abstract--*An astonishing senses that living things ever want to be without is-Vision. Vision is a powerful sense of living things that detects light. Every object or scene is a collection of light that our eyes visualize. In this paper, Identification of object and nature of the object in the scene-typically called image are done by partitioning the scene. Based on the relativity of the data in the scene, it is partitioned to non overlapping compact region by making predominant boundaries. By utilizing the static cues technique such as color and texture, all possible boundary locations in the image which are the edge pixels with positive color or texture gradient are found out. After analysis, the probability of these edge pixels, depth and contact boundary is determined to identify the edge of an image objects in a picture. Using the technique of probabilistic edge map, the intensity of a pixel is set to be the probability to be either depth or contact boundary in the scene. Based on the grouping features such as the position, elevation, orientation, the objects are recognized with the direct scene access. Thereby the expression of the object is identified by trained user object of the framework. Thus my experiment shows the proposed method as Image Object Partitioning with cue point.*

Keyword- *static cues, depth Boundary, contact boundary, probabilistic edge map.*

Problems/Issues

In computer technological literature, segmentation/Partitioning process in essence means of breaking a scene/picture into compact regions and non overlapping pixels, where each part/region constitutes relative pixels that are bounded by relative objects. On the whole, the basis of some similarity or dissimilarity measure obtained in the picture, many algorithms have been proposed that can partition a image into variety of regions, but the explanation of what is a correct or "desired" partition of an image (or scene) has largely been vague in the recent trends. In fact, the current issue of segmentation is not well posed. While we do not claim to know the exact purpose of these eye movements, we certainly draw our inspiration from the need of the human visual system to fixate at different locations in order to perceive that part of the scene. We think that fixation should be an essential component of any developed visual system. We hypothesize that, during a fixation, a visual system at least partitioning the region it is currently fixating at in the scene (or image). We also argue that integrating fixation into partitioning makes it well defined. Existing system intends the technique of polar gradient edge mapping which will be generated by transforming the gradient edge map of the disc with respect to the fixations in red and green colors. The problem of this system is that it does not take any object of interest

while partitioning, so it will be least recognized partitioned scene compared with original scene. And even if the process of partitioning is done by having object of interest, the partitioning of scene differs from one object of interest to another. But in this existing paper, the process of partitioning is done only by choosing the object of interest of the particular scene. However partitioning the scene by considering exact no of region or by having a global parameter for entire scene does not recognize the object the scene more clearly.

Let us look at this example to overview the current problem,

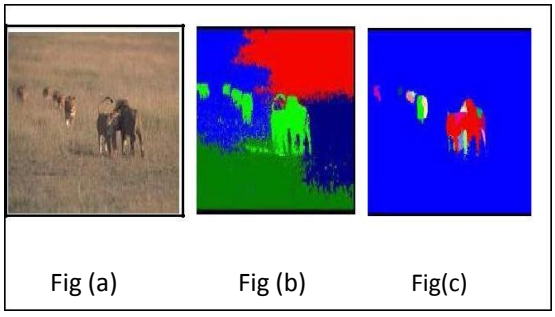


Fig (a) Fig (b) Fig(c)

Fig (a) is the original Scene with animals and grass background. Fig (b) is the segmented scene of Fig (a) with the object of interest as the background grass; hence the animals are least concentrated after the process of segmentation. Fig(c) is the segmented scene of Fig (a) with the object of interests as the animals, hence the background grass not there after the process of segmentation.

Related Work/Existing Technology:

Existing system proposes a technique of polar gradient edge mapping which will be generated by renovating the gradient edge map of the scene with respect to the fixations in RGB colors. Partitioning the region centering a given fixation point is a well-defined binary labeling problem in the polar space. To overcome this problem, the lengths of the possible closed contours around the fixation points are normalized thus, the Partitioning results are not affected by the scale of the fixated region. Using that fixation point as an identification marker on the object, we propose a method to segment the object of interest by finding the

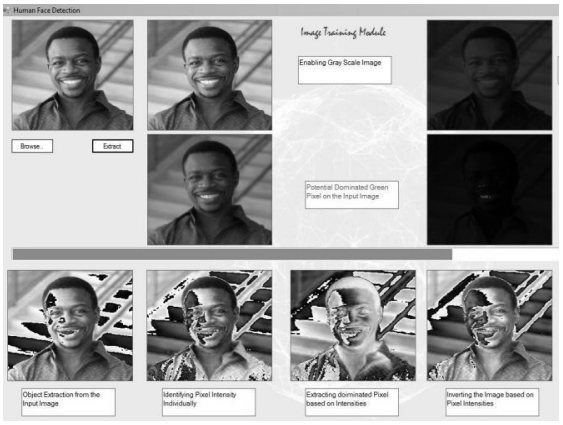
"optimal" closed contour around the fixation point in the polar space, avoiding the perennial problem of scale in the Cartesian.

The major disadvantage of the existing system is it takes the image irrespective of its pixel intensity rate. Since it uses the fixation concept to identify the expression of the scene by partitioning, it solves the only problem of perennial problem of scale in Cartesian. The process of edge detection to segment the boundary of a sense is least accurate with their detectors. Firstly, The edge detector like Canny edge detector finds edges at all the locations where there is a gradient in the intensity and returns a binary edge map, meaning all edge pixels are equally important. This makes the binary edge map useless for our purpose. Secondly, the gradient

magnitude is not always a good indicator of whether an edge pixel is at a boundary or not; second, Canny or similar intensity-based edge detectors are unable to find boundaries between textures and rather create strong edge responses inside a textured region.

Approaches/Concepts:

In the proposed scheme of partitioning the images, we have come up with variety of options and step by step approaches towards new technological innovations. The steps involved (a)Image Training Module, (b)Edge Detection



Module, (c) Image Partitioning (d)Object Recognition Module, (e)Expression Detection

(a)Image Training Module

An initial module to load an image and to train the system using set images. In this module, the system will identity the image uploaded by the user after secure authentication. It utilizes a stepwise procedure as follows. Initially the image form user source is uploaded and extracted in order to checked whether the image is fit for further extraction. Then, the process of training the image is done by enabling the gray scale image and from the gray scale image potentially dominated red, blue and green pixel are extracted. From then the object extraction is done from the image converted to RGB format to identify the pixel individually and to extract dominated pixel based on intensity with some pixel processing such as inverting the pixel intensity.

Algorithm:

1. Initialize the limit value and Bitmap Image values
2. Loop through image pixel height
i. Capture the color pixel and convert it into corresponding Red/Green/Blue Colors
ii. If Extracted Pixel value cross a specific boundary
iii. Assign the value of the corresponding pixel to 225 for the upper limit and 0 for the lower limit
iv. if the captured value is 0 then set the pixel value to black color and or else into white color.

(b)Edge Detection Module

In this module, the edges of the images will be identified and marked. The discontinuities are abrupt changes in pixel intensity which characterize boundaries of objects in a scene. Classical methods of edge detection involve convolving the image with an operator which is constructed to be sensitive to large gradients in the image while returning values of zero in uniform regions. The basic principle is, not all edges involve a step change in intensity. Effects such as refraction or poor focus can result in objects with boundaries defined by a gradual change in intensity.

Algorithm:

1. Initialize bitmap image
2. Capture the width and height color of the image
3. Loop through the bitmap width and height
i. assign the bitmap pixel value to a variable color
ii. set value for lower and upper range of color
iii. calculate the avg for Red/Green/Blue with range value
iv. calculate chromaticity value for Red/Green/Blue value
4. Find color changing pixel
5. Return the color changing pixel coordinate

This process utilizes a step of procedure as follows, at first the extracted image is cloned and the pixel intensity rate is checked for the cloned image. Convolve the image with operator to identify the edge of the sensitive data and checking whether it is returning the value zero uniformly. Then the image is subjected to the process of threshold in order to detect the edge

point more accurately. The boundary of the image is calculated and marked in point where the pixel intensity changes.

(c) Image Partitioning module

Image partitioning is the important module in this paper and it is the process of subdividing a digital scene into multiple meaningful regions or locations of pixels with respect to a particular cue point from the scene. The partitioning is based on measurements taken from the image and might be grey level, color, texture, depth or motion. Edge partitioning algorithm is used to partition the image which is obtained by calculating the discontinuity of pixel from uniform point of pixel.

This process utilizes a step of procedure as follows; the variables such as lefteye, righteye, lips, skincolor are initialized. The variables are extracted from the image and converted to RGB format. Then the RGB formatted images are tuned up with respect to the variables. Partition are made based on the edge detection in previous module

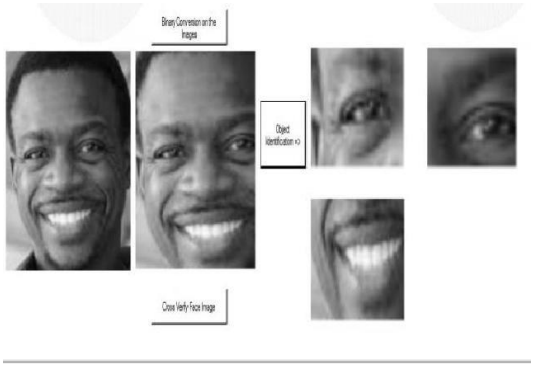
Algorithm:

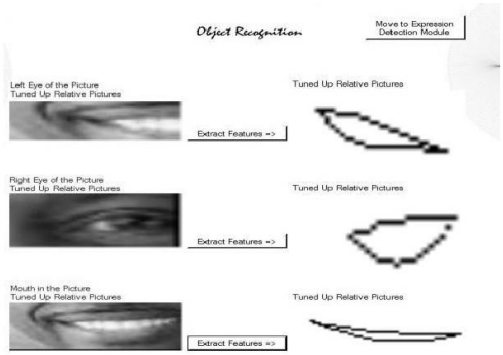
1. Initialize bitmap image, lefteye, righteye, skincolor, lips
2. Set the edge value from edge detection
3. Convert the bitmap image to Red/Green/Blue format
4. Partition the image with edge value

The basic steps involves,

a. Filtering the Scene: Images are corrupted by noise such as salt and sprinkle noise, impulse noise and Gaussian noise. As there is an exchange between edge

strength and noise reduction, filtration of scene is done.





b. Detection of Points: Many points in an image have a nonzero value for the gradient, and not all of these points are edges for a particular application. The process of threshold is used for the detection of edge points

(d)Object Recognition Module

Object recognition involves grouping features related to the same real-world object and extracting the important attributes of these objects. The information captured in an object is position in the image, position in the environment, heading, elevation, orientation and variances over these attributes. Although a sense of elegance might suggest benefits to a clean distinction between feature detection and object recognition it is convenient for the object recognition module to have direct image access.

The set of process are, the extracted image is cross verified and binary conversion is made.

Algorithm:

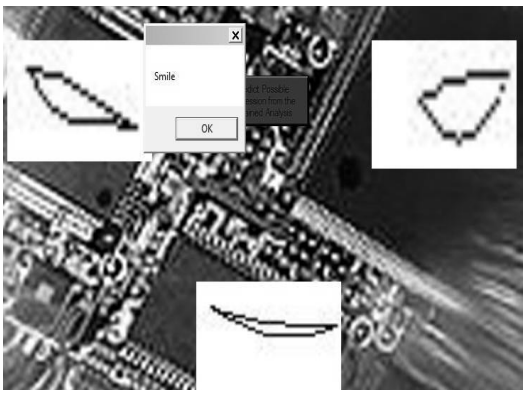
1. Initialize bitmap image, variable A, variable B, variable C, variable D
2. Loop through width and height of bitmap image
3. Set the bitmap image value to variable D
4. Calculate the Red/Green/Blue value from D
5. Assign the calculated value to variable A, variable B, variable C
6. Get the intensity of Variable A, Variable B, Variable c.
7. Set pixel width and height color as Black and Ghost White of Variable A, Variable B,Variable c to form binary image.
8. Return the width and height value.

(e)Expression Detection Module

Volume: 1 Issue: 1 06-Jun-2013,ISSN_NO: 2321-3337

Based on the trained images and objects identified, the system can easily identify the emotion of the particular user. We are proposing a 100% accurate system which can identify the user's emotion by visually segmenting their images.

The set of process of this module is, calculating the pixel value of the tuned image that is generated after binary conversion. Then the calculated values are cross checked with the trained image to obtain the expression of the image uploaded from user source.



Algorithm:

Initialize bitmap image, tuned binary image, expression
Loop through width and height of bitmap image

Extract binary image from bitmap
Loop through the bitmap image width and height.
match the pixel value with tuned image

.extract the matching expression

Return expression

Conclusion

We proposed here a novel formulation of partitioning in combination with fixation. Our contribution here was to put together an old problem—partitioning the image/scene—in a different way and give you an idea about that existing computational mechanisms in the state-of-the-art computer vision are satisfactory to lead us to capable automatic clarifications. An interesting avenue has to do with learning models of the world. For example, if we had a model of a "man face," we could segment the face more correctly. This interaction between low-level bottom-up processing and high-level top-down processing is a fruitful research direction. And thus the experiments for this paper "Image Object Partitioning using cue point technique" came out with better and successful implementation.

References:

(1) S. Alpert, M. Galun, R. Basri, and A. Brandt, "Image

Segmentation by Probabilistic Bottom-Up Aggregation and

Cue Integration,"*Proc. IEEE Conf. Computer Vision and Pattern Recognition,June 2007.*

(2) Y.Y.Boykov and M.P.Jolly,"Interactive Graph Cuts for

Optimal Boundary and Region Segmentation of Objects in n-d Images,"*Proc.Eighth IEE Int'l Conf.Computer*
Vision,PP.105-112,2002.

(3) A.L.Rothenstein and J.K.Tstsos,*"Attention Links sensing to Recognition,"Image Vision Computing"*

(4) J.M. Henderson, C.C. Williams, M.S. Castelhano, and R.J.

Falk,"Eye Movements and Picture Processing during Recognition,"*Perception and Psychophysics, vol. 65, pp. 725-734, 2003.*