International Journal of Swarm Intelligence and Evolutionary Computation

OPEN ACCESS Freely available online

Editorial

The Process of Partitioning a Digital Image into Multiple Segments

Haifeng D *

School of Public Policy and Administration, Center for Administration and Complexity Science of Xi'an, Jiao Tong University, Xi'an, Shanxi Province, 710049, China

DESCRIPTION

In digital image processing and computer vision, image segmentation is that the process of partitioning a digital image into multiple segments (sets of pixels, also called image objects). The goal of segmentation is to simplify and/or change the representation of a picture into something that's more meaningful and easier to investigate. Image segmentation is often wont to locate objects and limits (lines, curves, etc.) in images. More precisely, image segmentation is that the process of assigning a label to each pixel in a picture such pixels with the identical label share certain characteristics.

For any given segmentation of a picture, this scheme yields the amount of bits required to encode that image supported the given segmentation. Thus, among all possible segmentations of a picture, the goal is to search out the segmentation which produces the shortest coding length. This will be achieved by an easy agglomerative clustering method. The distortion within the lossy compression determines the coarseness of the segmentation and its optimal value may differ for every image. These parameters are often estimated heuristically from the contrast of textures in a picture. As an example, when the textures in a picture are similar, like in camouflage images, stronger sensitivity and thus lower quantization is required.

Histogram-based approaches also can be quickly adapted to use to multiple frames, while maintaining their single pass efficiency. The histogram is drained multiple fashions when multiple frames are considered. The identical approach that's crazy one frame will be applied to multiple, and after the results are merged, peaks and valleys that were previously difficult to spot are more likely to be distinguishable. The histogram also can be applied on a per-pixel basis where the resulting information is employed to work out the foremost frequent color for the pixel location. This approach segments supported active objects and a static environment, leading to a special variety of segmentation useful in video tracking.

Thresholding is that the simplest non-contextual segmentation technique. With one threshold, it transforms a greyscale or color image into a binary image considered as a binary region map. The binary map contains two possibly disjoint regions, one among them containing pixels with computer file values smaller than a threshold and another regarding the input values that are at or above the edge. The previous and latter regions are usually labelled with zero (0) and non-zero (1) labels, respectively. The segmentation depends on image property being thresholded and on how the brink is chosen. Generally, the non-contextual thresholding may involve two or more thresholds likewise as produce over two varieties of regions such ranges of input image signals associated with each region type are separated with thresholds. The question of thresholding is the way to automatically determine the edge value.

A general approach to thresholding relies on assumption that images are multimodal, that is, different objects of interest relate to distinct peaks (or modes) of the 1D signal histogram. The thresholds should optimally separate these peaks in spite of typical overlaps between the signal ranges such as individual peaks. A threshold within the valley between two overlapping peaks separates their main bodies but inevitably detects or rejects falsely some pixels with intermediate signals.

Correspondence to: School of Public Policy and Administration, Center for Administration and Complexity Science of Xi'an, Jiao Tong University, Xi'an, Shanxi Province, 710049, China, E-mail: duhaifeng25@gmail.com

Received date: January 01, 2021; **Accepted date:** January 21, 2021; **Published date:** January 28, 2021

Citation: Haifeng D (2021) The Process of Partitioning a Digital Image into Multiple Segments. Int J Swarm Evol Comput 10:e199.