

Comprehensive Meaning Of Segmentation By Clustering

Segmentation as a word, means to classify the objects that are exists in an image, it has many theories and methodologies, assume that we would like to recognize objects in an image, there are too many pixels to handle each individually, instead, we should like some form of compact, summary representation.

Although, superficially these different methods may seem some how complicated for any reader, in this article I will demonstrate the meaning of clustering in segmentation.

One natural view of segmentation is that we are attempting to determine which components of data set naturally belong together. This is a problem known as clustering.

We can cluster in two ways:

-Partitioning: here we have a large data set, and curve it up according to notion of the association between items inside the set. We would like to decompose it into pieces that are good according to our model. For example we can decompose an image into regions that have coherent color and texture.

-Grouping: in this part we have distinct data items, and we would like to collect sets of data items that make sense together.

The key here is to determine what representation is suitable for the problem at hand, we need to know by what criteria a segmentation method should decide which pixels belong together and which do not.

Once we decide which cluster method suitable for our application, segmentation by clustering could be very useful for some applications that may use clustering, as well as summarizing video, or finding machine parts, finding people in mage, finding buildings in satellite images: these done by looking for collections of edge points that can be assembled in line segment and then assembling line into polygons.

It is hard to see that there could be a comprehensive theory of segmentation, not least what is interesting and what is not depends on the application, there is no comprehensive theory of segmentation at time of writing.

Since clustering is defined above, in addition clustering is a process whereby a data set is replaced by cluster, it is natural to think of segmentation as clustering, another meaning: pixels may belong together because they have the same color, the same texture, they are nearby, and so on. Some of clustering methods as well as: clustering by K-means, segmentation by graph theoretic clustering.

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