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On How To Combine Image Segmentation Algorithms Using Entropy

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Image segmentation is one of the most frequently used computer vision techniques. Whether we talk about medical imaging or autonomous driving, image segmentation algorithms are required to obtain the desired result. Therefore, a variety of algorithms have been implemented so far. Being based on different approaches, each of these algorithms has its own advantages and disadvantages. No algorithm can perform the same regardless of input data, with algorithms yielding better or worse results depending on the characteristics of the image. Some may accurately preserve the borders between large regions while clustering small details together (under-segmentation), while others can correctly delimit details while at the same time splitting large regions in multiple clusters (over-segmentation). Moreover, some algorithms might have a natural tendency in over-segmentation or under-segmentation, independent of input. This paper proposes a voting method which combines the results of some notable segmentation algorithms. The aim of this method is to limit the downsides of the used algorithms and to obtain, if possible, more accurate results. The results show that, in most cases, the proposed method offers both improvements in the quality of the provided output and more overall confidence in its usage.

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