# Image Cropping via Segmentation

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## The image segmentation algorithm

Given: the original image given with the 2d array , the width and height of the original image

Output: segmentation mask

Details about the segmentation algorithm and the deep learning network used to build it can be found in [1] .

## The image cropping algorithm

Given: segmentation mask , the aspect ratio of the desired cropped image , the original image given with the 2D array , the width and height of the original image.

Output: Cropped image , the width and the height of the cropped image

Center of mass

*- aspect ratio*

Algorithm for finding the width and the height of the cropped image

Pseudocode of the algorithm shown below:

case 1)

we set

if and then:

return

elif and then:

return

elif and then:

return

elif and then:

return

case 2)

we set

if and :

return

elif and :

return

elif and :

return

elif and :

return

## References

[1] [Highly Accurate Dichotomous Image Segmentation, Xuebin Qin et al, 2022](https://github.com/dimitarpg13/deep_learning_for_image_processing/blob/main/literature/articles/semantic_segmentation/Highly_Accurate_Dichotomous_Image_Segmentation_Qin_2022.pdf)

[2] [Trainable pixel segmentation with scikit-image using RandomForestClassifier](https://scikit-image.org/docs/stable/auto_examples/segmentation/plot_trainable_segmentation.html)