

What is the difference between `imregionalmax()` of matlab and `scipy.ndimage.filters.maximum_filter`

Asked 9 years, 2 months ago Modified 3 years, 8 months ago Viewed 5k times



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I need to find the regional maxima of an image to obtain foreground markers for watershed segmentation. I see in matlab use the function [imregionalmax\(\)](#) . As I don't have the matlab software, I use the function [scipy.ndimage.filters.maximum_filter\(\)](#) instead. However, the results from `imregionalmax()` and `scipy.ndimage.filters.maximum_filter()` are different.

Please help me how to find out the regional maxima of an image. Thanks very much for your help.

[python](#) [matlab](#) [image-processing](#) [computer-vision](#) [image-segmentation](#)

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edited Jul 1, 2020 at 5:49



Shai

113k

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asked Dec 22, 2014 at 7:13



user30985

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It appears as if scipy's `maximum_filter` returns the actual local max values, while Matlab's `imregionalmax` returns a mask with the *locations* of the local maxima.

I would expect



```
lm = scipy.ndimage.filters.maximum_filter( img, ... )
msk = (img == lm) #// convert local max values to binary mask
```



should give you similar results to Matlab's.



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answered Dec 22, 2014 at 7:24



Shai

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1 I got similar results to Matlab's. Thanks so much. – [user30985](#) Dec 22, 2014 at 20:04

you know it's true but `scipy.ndimage.filters.maxximum_filter(...)` isn't like `imregionalmax` how ever it makes the index boolean but it's not the same – [masoud anaraki](#) Nov 18, 2020 at 17:31



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I am new to Python but I spent a lot of time to find the 100% equivalent of Matlab's `imregionalmax()`. For me, the above, `msk = (img == lm)` did NOT work because of my huge 3D arrays. I instead used `scikit-images.peak_local_max` as follows:



1) define `conn_26` to be 3x3x3 array of one's.



2) `coordinates = peak_local_max(3D_img, footprint=conn_26, indices=False, exclude_border=0)`



is similar to `coordinates = imregionalmax(3D_img, 26)`

Hope this helps :)

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answered Aug 25, 2016 at 17:20



Claudia

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