Numpy matrix rotation for any degrees

Asked 3 years, 1 month ago Active 1 year, 6 months ago Viewed 16k times

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I try to find a way to apply a matrix rotation of any degrees on my matrix that contains three bands like RGB but values are bigger than (0-255).

It is an example of my data its shape is (100, 100, 3):

```
[[ 847.5  877.   886.  ...  821.5  856.5  898. ]
[ 850.   883.   969.5 ...  885.   878.5  947.5]
[ 982.   968.5  927.5 ...  909.5  958.  1037. ]
...
[ 912.   827.   893.  ... 1335.  1180.  1131. ]
[ 954.   855.5  882.  ... 1252.  1266.  1335. ]
[ 984.   916.   930.  ... 1080.5 1278.  1385.5]]
```

I found a function `scipy.misc.imrotate(image_array, 20)` but the problem is this function rescales my data to the range (0-255), thus I loose information of my original matrix. Is there a function that does the same job as the previous one without rescaling data ?

python numpy matrix Edit tags

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asked Nov 6 '18 at 11:32

Loic L.
167 1 2 12

Why not implement matrix rotation – cvanelteren Nov 6 '18 at 11:55

2 Answers

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You might want to try open CV's warpAffine(). It allows for rotation and translation of the image.

Depending on your choice of interpolation method you might have some changes to your values thoug.

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edited May 18 '20 at 19:08

answered Nov 6 '18 at 11:48

PIvarsen
48 1 8

@Felix Xu, I think both the question and the accepted answer are concerned with rotating an image like matrix, i.e. rotating coordinates in the plane. This can also be achieved using open CVs warpAffine.. – PIvarsen May 18 '20 at 19:08

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Have you tried `rotate` function from `scipy.ndimage.interpolation` ?

```
import numpy as np
from scipy.ndimage.interpolation import rotate

x = np.random.randint(800, 1000, size=[100, 100, 3])
rotated = rotate(x, angle=45)
```

It does rotate matrix without scaling the values.

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edited Dec 26 '19 at 13:39
Mark Dickinson
26.4k 9 74 110

answered Nov 6 '18 at 12:08
Manash Mandal
326 1 4

3 Thanks, it seems that it achieves what I want. To keep the same shape as the input i.e (100,100,3) I just need to add an extra parameter which is `rotate(x, angle=45, reshape=False)` – Loic L. Nov 6 '18 at 13:40

This rotate operation from scipy changes the intensity values of objects, I just checked and compared with the ones obtained from PIL.Image.rotate. I am trying to avoid PIL. – samra irshad Aug 16 '20 at 10:16