Resample all images in the database to the same voxel size

Asked 8 years, 5 months ago Modified 3 years, 10 months ago

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2

I have 3 dicom stacks of size `512x512x133, 512x512x155 and 512x512x277`. I would like to resample all the stack to make the sizes `512x512x277, 512x512x277 and 512x512x277`. How to do that?

I know I can do resampling using slice thickness and pixel spacing. But that would not ensure same number of slices in each cases.

python matlab image-processing medical-imaging

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edited Feb 8, 2021 at 6:08

Amit Joshi

16.3k • 23 • 84 • 148

asked Jul 5, 2016 at 3:28

Avijit Dasgupta

2,055 • 3 • 23 • 37

Please don't ask duplicate questions. If your question is not getting answers, improve the question, or maybe just give it a bit more time. – beaker Jul 5, 2016 at 14:55

1 Actually, what happened is that, I posted the question at night. But due to some glitch (may be) it was not showing in the morning. So, I posted it again. :(Sorry!
– Avijit Dasgupta Jul 7, 2016 at 15:39

2 Answers

Sorted by: Highest score (default)

1

You can use `scipy.ndimage.interpolate.zoom`, specifying the array of zoom factors for each axis like this:

```
# example for first image
zoomArray = desiredshape.astype(float) / original.shap
zoomed = scipy.ndimage.interpolate.zoom(original, zoom
```

UPDATE:

If that is too slow, you could try somehow to create separate images from the vertical slices of your "image cube", process them with some high-speed image library (some folks love ImageMagick, there's also PIL, opencv, etc.), and stack them together again. That way, you'd take 512 images of size 512x133 and resize them to 512x277, then stack again to 512x512x277 which is your final desired size. Also, this separation would allow for parallelization. One think to consider is: this would only work if the transversal axis (the one along which you will slice the 2D images) would not be resized!

Share Improve this answer edited Jul 5, 2016 at 13:16

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answered Jul 5, 2016 at 3:50

heltonbiker

27.5k ● 30 ● 149 ● 266

desiredshape would contain (512,512,277)?
– Avijit Dasgupta Jul 5, 2016 at 7:10

I have updated the answer, but I wonder if it would improve speed much. – heltonbiker Jul 5, 2016 at 13:16

0

You can use the `Resample` transform in TorchIO.

```
import torchio as tio
small, medium, large = dicom_dirs  # the folders of yo
reference = tio.ScalarImage(large)
resample = tio.Resample(reference)
small_resampled = resample(small)
medium_resampled = resample(medium)
```

The three images now have the same shape, 512 x 512 x 277.

Disclaimer: I am the main developer of TorchIO.

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answered Feb 7, 2021 at 16:12

fepegar

693 ● 1 ● 7 ● 16