

Step 1

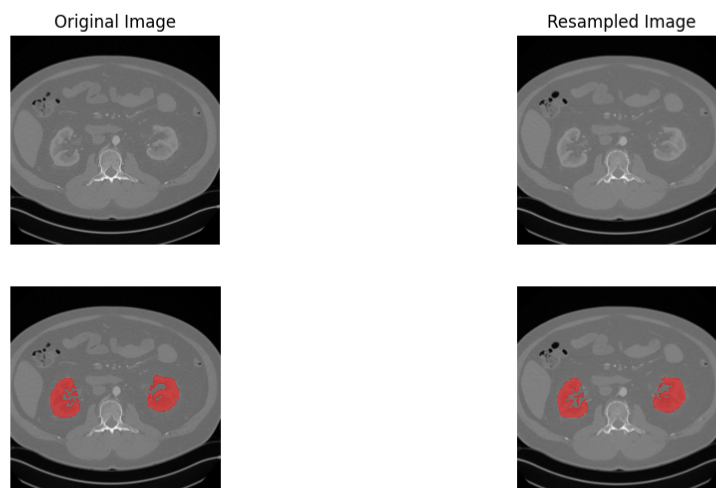
Load the KiTs19 dataset form the official repository by running

```
![window_0_2_0]
(D:\Math\DataScience\Project_U_Net\results\plots\sliding_window>window_0_2_0.png)
git clone https://github.com/neheller/kits19
cd kits19
pip3 install -r requirements.txt
python3 -m starter_code.get_imaging
```

Step 2

The raw image is resampled by setting the voxel spacing to $[3.22, 1.62, 1.62]$. And the new image shape can computed by

$$\text{new_size} = \text{original_size} \times \frac{\text{origina_spacing}}{\text{new_spcing}}$$



And we need also clip and normalize the image intensity.

```
image = np.clip(image, intensity_min, intensity_max)
image = (image - intensity_mean) / intensity_std
```

We choose a $80 \times 160 \times 160$ patch from the resampled image and put it into the model.



Step 3

Run the code

```
python train.py MODEL.NAME XXX
```

to train different kinds of model. The XXX can be ['plane_unet_3d', 'pre_act_unet_3d', 'residual_unet_3d'].

Step 4

After getting the best model file `model_best.pth`, we can ensemble the 5-fold model to do inference by running the code.

```
python inference.py
```

The inference can be summarized in the following process

