Nuclei Segmentation using Mask-RCNN

In this project, we need to segment all the nuclei present in the images. Separate mask is given for the training dataset. So I First combined all the masks and used that as the y label for the training dataset.

I modified Matterports implementation of Mask-RCNN deep neural network for object instance segmentation. I adapted the existing model configurations to detect small nuclei in images with varying size and modality. To ensure that the model doesn't over fit, I used image augmentation on all the train dataset. But the problem comes in the segmentation of those nucleus which overlap each other .So possible approach is that, first we add 1 pad to the pixels in the input images and then train our model and after training remove that extra padding .

I kept few images from the training dataset for the validation set. The ids of these images are mentioned in the code.

Command usage:

```
nucleus.py train --dataset=/path/to/dataset --subset=stage1_train --weights=coco
```

After training these are the output we get after testing it on test set images: