HipMRI U-Net

2D U-Net for the HipMRI prostate cancer data

About

This is an implementation of a 2D U-Net based on [1] that tries to produce segmentations of the HipMRI data set.

Architecture

(insert picture of U-Net here)

In essence I use almost the exact architecture as the original U-Net outlined in [1], but with one of the 'U' layers removed so that there are three encoder and decoder steps instead of four.

Dependencies

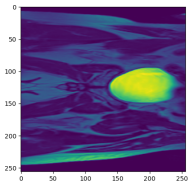
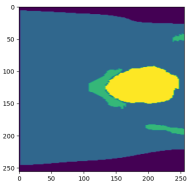
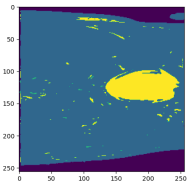
(List the man deps, perhaps include the conda env file in the repo)

Note that I have also included a conda environment file called `comp3710_env.yml` that should cover all the required dependencies for you.

Training and Results

Unfortunately as it stands, the implementation does not produce great results. The most recent run produced this training loss:

In addition it also produced segment maps that were not ideal. Below is the result for the first test image of the HipMRI data:

Original image	Expected segment map	Predicted segment map
		

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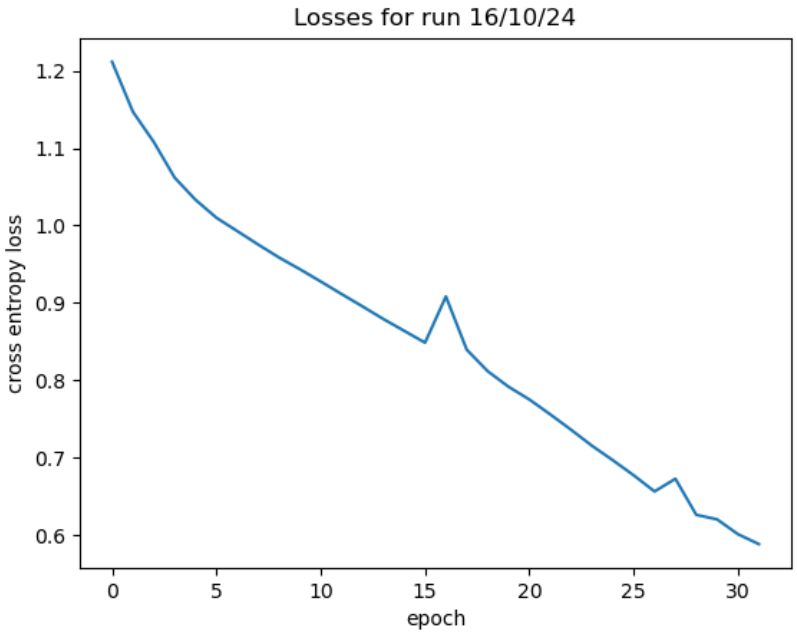

Figure 1: train_loss

References

[1] O. Ronneberger, P. Fischer, and T. Brox, "U-Net: Convolutional Networks for Biomedical Image Segmentation", in *Medical Image Computing and Computer-Assisted Intervention - MICCAI 2015*, N. Navab, J. Hornegger, W. M. Wells, and A. F. Frangi, Eds., Cham: Springer International Publishing, 2015, pp. 234-241. doi: 10.1007/978-3-319-24574-4_28.