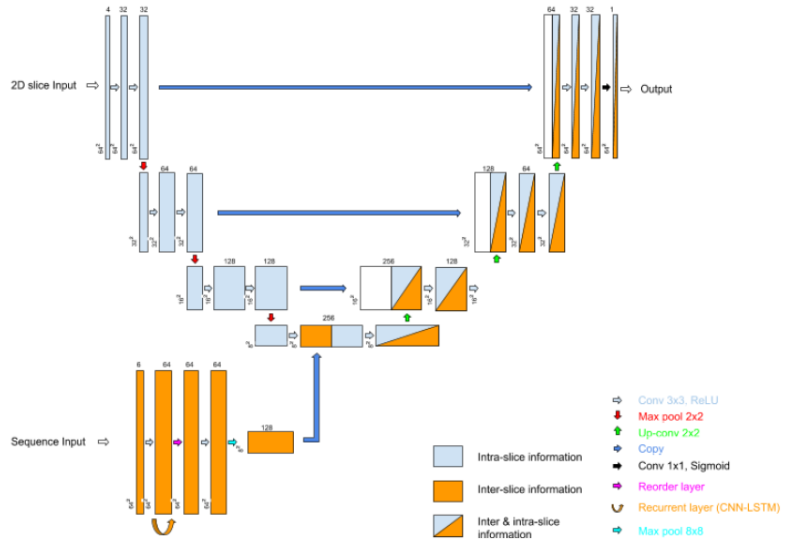
Schematic view of the RFCN architectures.

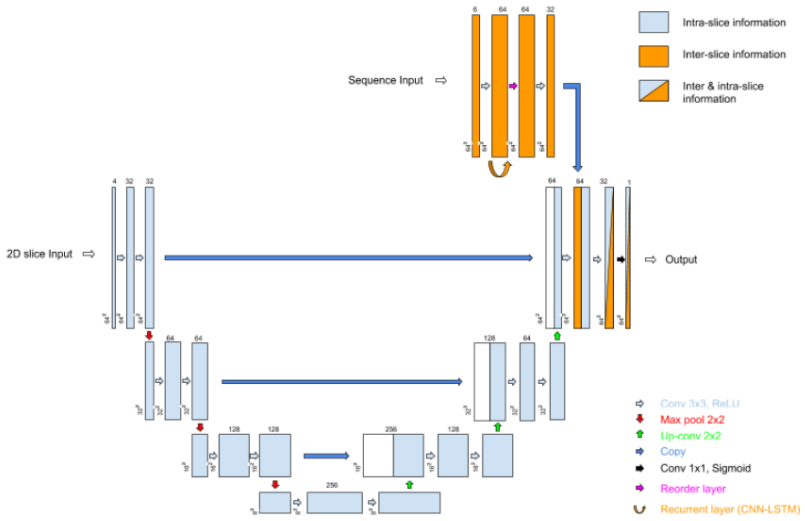
The baseline model made was a U-net and I tried to improve the results by adding a sequence of images preceding the images analyzed by the model, thereby hoping to leverage inter-slice information across layers. Due to computational limitations, the sequence was built out of segmented masks produced by the baseline U-net, and only few preceding image slices were used. The data was heavy scaled down from 240x240x155 to 64x64x41 due to memory limitations, nevertheless the concept seems to work. In order to test if this idea works, full sliced images were not needed in the sequence and nor was it needed to add every preceding or succeeding slice around the slice currently being segmented.

The U-Net produced a dice score of 83.9% on test data and both RFCN architectures produced a dice score around the 84.4%.

RFCN-1



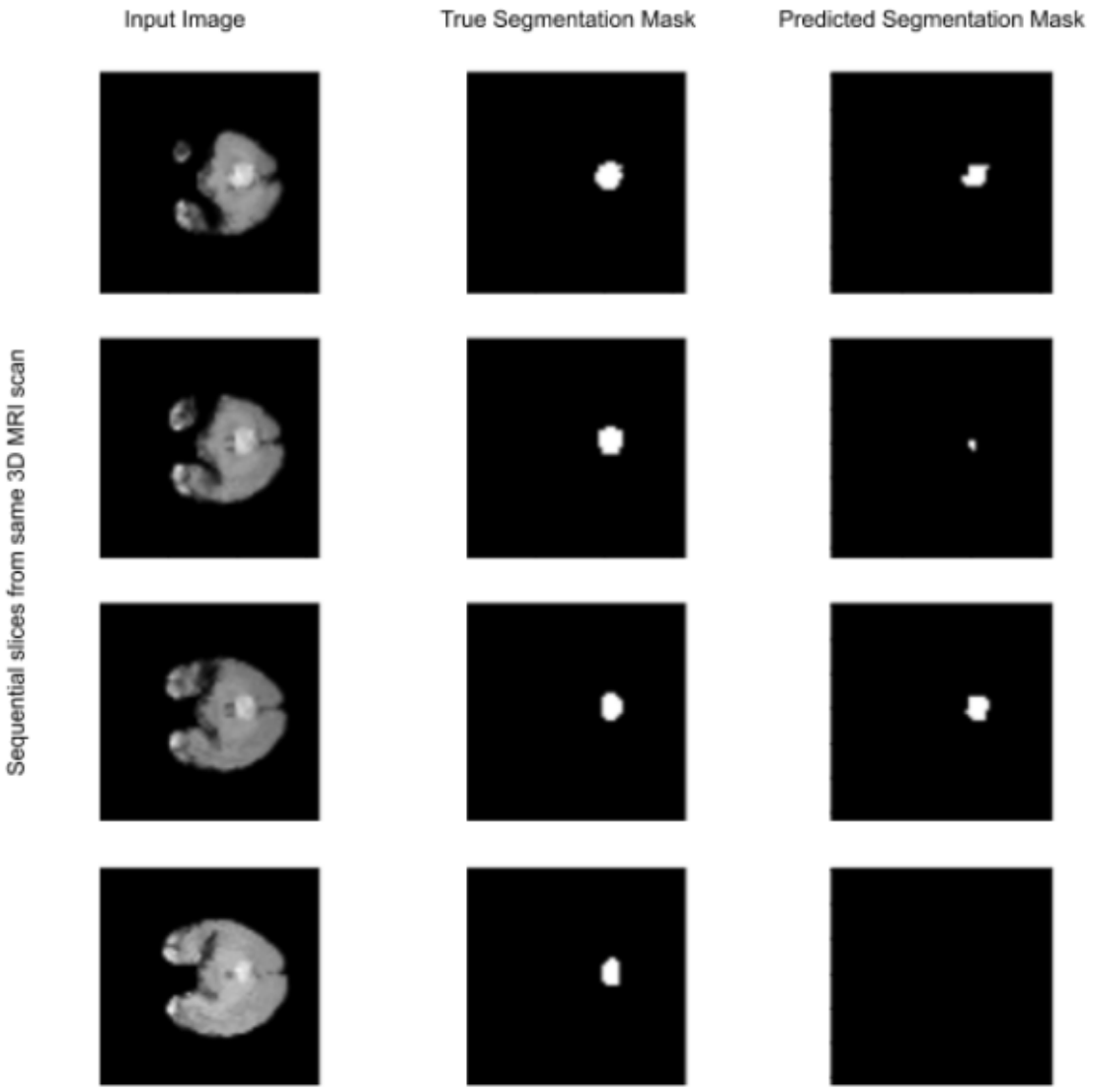
RFCN-2



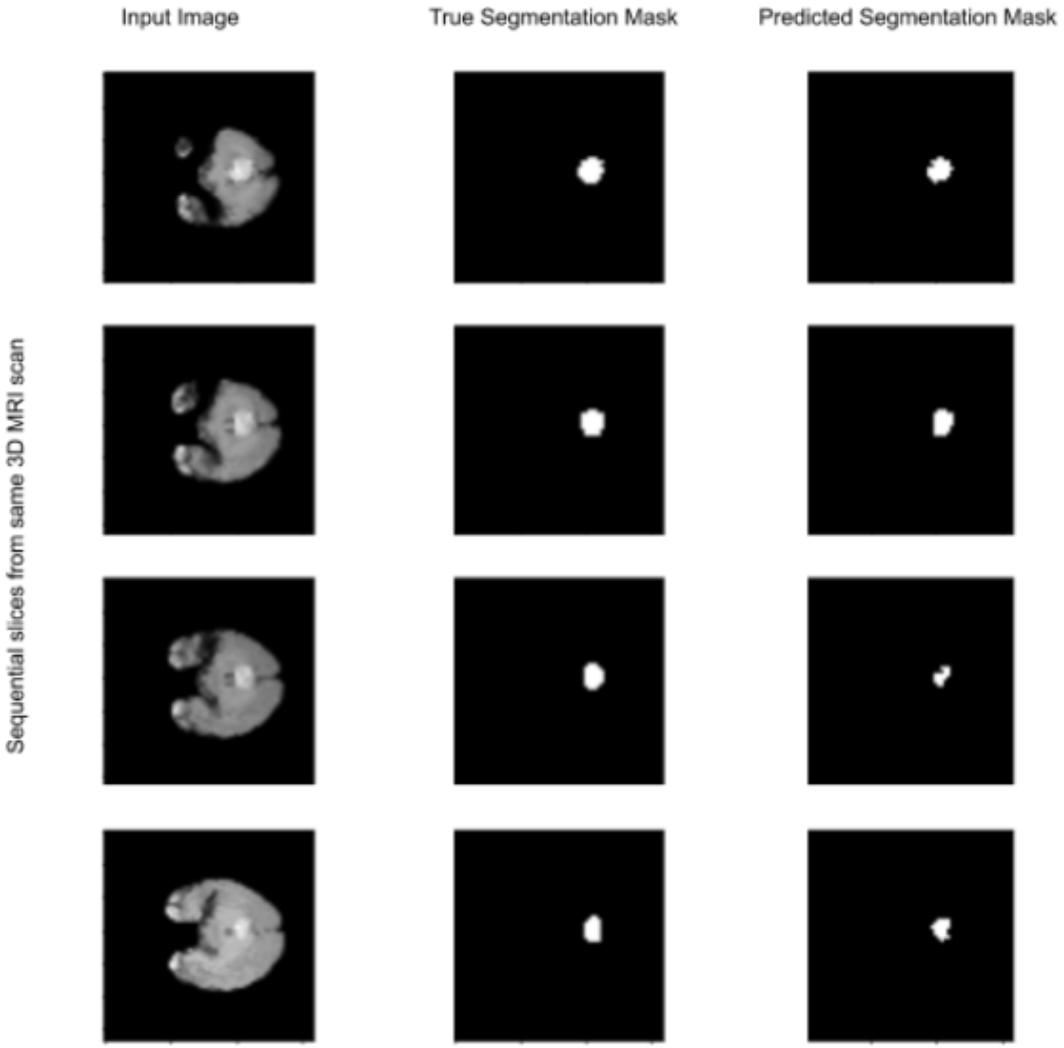
Results/improvements to the U-Net.

The results show that information of previous slices is used to create better segmentation masks in the one currently created.

Results U-net:



Improved result RFCN-1



Improvements result RFCN-2