Introduction

This is my attempt to the 2019 CHAOS challenge.
The aim of the challenge was to segment abdominal organs (liver, kidneys and spleen) from MRI and CT scans.
The original tasks were 5 but for this project only tasks 3(Liver Segmentation [MRI only]) and 5(Segmentation of abdominal organs [MRI only]) were required.

Preprocessing

Only basic preprocessing was done.
Dicom images: histogram equalization, image normalization, resizing.
Mask images: resizing.

A data augmentation step that flipped images vertically was added.

Network

A U-Net model was used for the training as it was the most recommended one for biomedical image segmentation.
Other than the standard approach some weights were added to make up for the excess of the background class.

Results

Limited by my experience I couldn't provide a result up to standards, but I'm still satisfied as in some cases the model is able to predict masks in a fairly accurate way.

References

[1] A.E. Kavur, N.S. Gezer, M. Barış, S. Aslan, P.-H. Conze, et al. "CHAOS Challenge - combined (CT-MR) Healthy Abdominal Organ Segmentation", Medical Image Analysis, Volume 69, 2021. https://doi.org/10.1016/j.media.2020.101950

[2] A.E. Kavur, M. A. Selver, O. Dicle, M. Barış, N.S. Gezer. CHAOS - Combined (CT-MR) Healthy Abdominal Organ Segmentation Challenge Data (Version v1.03) [Data set]. Apr. 2019. Zenodo. http://doi.org/10.5281/zenodo.3362844