

CHAOS CHALLENGE: AI EXPLORE

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Preprocessing

Before all the images going through the training process, we performed clipping of the Hounsfield units (HU) values from -160 to 240, did z-score transformation, and resized its volume into an input size of 184 x 184 x 112.

Data Augmentation

We also performed random rotation, shifting, and elastic deformation.

Networks

We used 3D network architecture namely V-Net: Fully Convolutional Neural Networks for Volumetric Medical Image Segmentation [1]. For faster convergence, we used Adam optimizer. Our hyperparameters are set with (1) initial learning-rate of 0.001, (2) beta1 of 0.9, (3) beta2 of 0.999, and (4) epsilon of $1e^{-08}$. The loss function is Dice coefficient.

Postprocessing

At the end, we also performed connected components labelling 3D, opening, and closing.

Bibliography

- [1] F. Milletari, N. Navab, and S.-A. Ahmadi, "V-Net: Fully Convolutional Neural Networks for Volumetric Medical Image Segmentation," *arXiv:1606.04797 [cs]*, Jun. 2016, Accessed: May 03, 2020. [Online]. Available: <http://arxiv.org/abs/1606.04797>.