

# nnU-Net with Multiple Loss Ensembles for Aneurysm Segmentation

(Team: UW3)

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## Method

A 3D full resolution of nnU-Net was employed for the segmentation of Intracranial Aneurysm. In literature, working with imbalanced datasets is one of the most challenging issues. Since lesions often occupy a very smaller volume relative to the background, the model's prediction is biased towards low sensitivity. Therefore, to address the highly imbalanced dataset, different loss functions were analyzed. While in our last model (UW2) we used Dice + CE + TopK loss and assigned a constant weight for each loss to capture the different aspects of embedding as well as diverse features, in our last model (UW3) a random selection of losses was used. We employed the nnU-Net with the architecture as same as the first submission. The ADAM dataset includes 113 cases. However, there is no aneurysm in some cases. As a result, we just used the cases with aneurysm included. So, we used 65 cases as training set and 24 cases for test data. We also apply five-fold cross validation and use a 3\* RTX 3090 GPU workstation with patch size of  $256 \times 224 \times 56$  and a batch size of 2, and CUDA version 11.6. Each fold took about 30 hours.