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Supplementary Materials

MRI-Based Deep Learning Method for Classification of IDH Mutation Status

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1. ROC Methodology

The network output classifies voxels in the tumor as IDH mutated or IDH wildtype. The percentage of IDH-mutated voxels was computed for the network output for each subject in the test set by dividing the predicted IDH-mutated voxels by the total number of predicted voxels in each tumor. The percentage of mutated voxels can be viewed as a network output prediction likelihood of the tumor being IDH mutated. Note that, in the manuscript, majority voting (the 50% threshold) was used to determine IDH prediction. For the ROC analysis, the percentage of IDH-mutated voxels was sorted and used as separate thresholds (cut points) to determine IDH mutation status for the subjects across the test set for each new cut point. The resulting predicted IDH class membership was compared to the ground truth values to determine sensitivity (true-positive rate) and 1- specificity (false-positive rate) at each threshold. The resulting values were plotted using R programming to obtain an ROC curve (true-positive rate against false-positive rate). Routines in R programming were used to fit the curves and determine the area under the curve (AUC). This procedure was repeated for both T2-net and MC-net and their two training combinations. Smoothed curves were used to facilitate displaying the figure.

Table S1. Training subjects and corresponding IDH status.

Subject ID	IDH Status
TCGA-06-0128_19990218	mutated
TCGA-06-0129_20000314	mutated
TCGA-06-2570_20070726	mutated
TCGA-06-5417_20080903	mutated
TCGA-06-6389_20090404	mutated
TCGA-14-1456_19990422	mutated
TCGA-CS-4942_19970222	mutated
TCGA-CS-4943_20000902	mutated
TCGA-CS-4944_20010208	mutated
TCGA-CS-5393_19990606	mutated
TCGA-CS-5396_20010302	mutated
TCGA-CS-6290_20000917	mutated
TCGA-CS-6665_20010817	mutated
TCGA-CS-6666_20011109	mutated
TCGA-CS-6667_20011105	mutated
TCGA-CS-6668_20011025	mutated
TCGA-DU-5849_19950405	mutated
TCGA-DU-5851_19950428	mutated
TCGA-DU-5853_19950823	mutated
TCGA-DU-5855_19951217	mutated
TCGA-DU-5871_19941206	mutated
TCGA-DU-5872_19950223	mutated
TCGA-DU-5874_19950510	mutated
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TCGA-DU-6397_19850130	mutated
TCGA-DU-6399_19830416	mutated
TCGA-DU-6400_19830518	mutated
TCGA-DU-6401_19831101	mutated
TCGA-DU-6407_19860514	mutated
TCGA-DU-6408_19860521	mutated
TCGA-DU-7008_19830723	mutated
TCGA-DU-7010_19860307	mutated
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TCGA-DU-7309_19960831	mutated
TCGA-DU-8164_19970111	mutated
TCGA-DU-8166_19970322	mutated
TCGA-DU-8167_19970402	mutated
TCGA-DU-8168_19970503	mutated
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TCGA-DU-A5TS_19970726	mutated
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TCGA-DU-A5TW_19980228	mutated
TCGA-DU-A6S2_19980404	mutated
TCGA-DU-A6S3_19980711	mutated
TCGA-DU-A6S6_19920521	mutated
TCGA-DU-A6S7_19980513	mutated
TCGA-DU-A6S8_19980620	mutated
TCGA-FG-5964_20010511	mutated
TCGA-FG-6689_20020326	mutated
TCGA-FG-6690_20020226	mutated
TCGA-FG-6691_20020405	mutated
TCGA-FG-7634_20000128	mutated
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TCGA-HT-7616_19940813	mutated
TCGA-HT-7684_19950816	mutated
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TCGA-HT-8105_19980826	mutated
TCGA-HT-8106_19970727	mutated
TCGA-HT-8111_19980330	mutated
TCGA-HT-8113_19930809	mutated
TCGA-HT-8114_19981030	mutated
TCGA-HT-8563_19981209	mutated
TCGA-HT-A61A_20000127	mutated
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W21	mutated
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TCGA-02-0006_19960823	wildtype
TCGA-02-0009_19970614	wildtype
TCGA-02-0011_19980201	wildtype
TCGA-02-0027_19990328	wildtype
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TCGA-06-0147_19970610	wildtype
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TCGA-06-0166_19990601	wildtype
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TCGA-06-0174_20011109	wildtype
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TCGA-06-0187_20040707	wildtype
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W74	wildtype
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W80	wildtype
W84	wildtype
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W91	wildtype
W93	wildtype
W96	wildtype
W98	wildtype
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MR_EGD-0262	wildtype
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MR_EGD-0264	wildtype
MR_EGD-0266	wildtype
MR_EGD-0268	mutated
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MR_EGD-0503	wildtype
MR_EGD-0505	wildtype
MR_EGD-0506	wildtype
MR_EGD-0507	wildtype
MR_EGD-0508	wildtype
MR_EGD-0509	mutated
MR_EGD-0511	mutated
MR_EGD-0512	wildtype
MR_EGD-0514	mutated
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MR_EGD-0516	wildtype
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MR_EGD-0522	wildtype
MR_EGD-0523	mutated
MR_EGD-0524	wildtype
MR_EGD-0529	wildtype

MR_EGD-0530	mutated
MR_EGD-0531	wildtype
MR_EGD-0532	wildtype
MR_EGD-0535	wildtype
MR_EGD-0536	mutated
MR_EGD-0537	mutated
MR_EGD-0539	wildtype
MR_EGD-0541	mutated
MR_EGD-0543	mutated
MR_EGD-0544	wildtype
MR_EGD-0545	wildtype
MR_EGD-0547	wildtype
MR_EGD-0548	wildtype
MR_EGD-0549	wildtype
MR_EGD-0552	mutated
MR_EGD-0553	mutated
MR_EGD-0557	wildtype
MR_EGD-0558	wildtype
MR_EGD-0561	mutated
MR_EGD-0563	mutated
MR_EGD-0564	mutated
MR_EGD-0565	mutated
MR_EGD-0567	mutated
MR_EGD-0568	mutated
MR_EGD-0571	mutated
MR_EGD-0572	mutated
MR_EGD-0575	wildtype
MR_EGD-0577	mutated
MR_EGD-0578	wildtype
MR_EGD-0579	wildtype
MR_EGD-0580	wildtype
MR_EGD-0581	wildtype
MR_EGD-0585	mutated
MR_EGD-0586	mutated
MR_EGD-0587	wildtype
MR_EGD-0589	wildtype
MR_EGD-0591	wildtype
MR_EGD-0592	wildtype
MR_EGD-0593	wildtype
MR_EGD-0594	wildtype
MR_EGD-0595	wildtype
MR_EGD-0596	wildtype
MR_EGD-0598	mutated
MR_EGD-0599	wildtype
MR_EGD-0600	wildtype
MR_EGD-0601	mutated
MR_EGD-0602	wildtype
MR_EGD-0603	wildtype
MR_EGD-0604	wildtype
MR_EGD-0605	wildtype
MR_EGD-0606	mutated
MR_EGD-0608	wildtype
MR_EGD-0611	wildtype
MR_EGD-0612	wildtype
MR_EGD-0617	wildtype
MR_EGD-0621	wildtype
MR_EGD-0622	wildtype
MR_EGD-0624	wildtype
MR_EGD-0626	mutated
MR_EGD-0627	wildtype
MR_EGD-0629	wildtype
MR_EGD-0631	mutated
MR_EGD-0632	wildtype
MR_EGD-0633	mutated
MR_EGD-0635	wildtype
MR_EGD-0636	mutated
MR_EGD-0638	mutated
MR_EGD-0639	wildtype
MR_EGD-0640	wildtype
MR_EGD-0641	wildtype
MR_EGD-0643	wildtype
MR_EGD-0645	wildtype
MR_EGD-0647	mutated
MR_EGD-0648	wildtype
MR_EGD-0655	mutated
MR_EGD-0656	mutated
MR_EGD-0657	wildtype
MR_EGD-0658	wildtype
MR_EGD-0659	wildtype
MR_EGD-0661	wildtype
MR_EGD-0662	mutated
MR_EGD-0663	wildtype
MR_EGD-0664	wildtype
MR_EGD-0665	wildtype
MR_EGD-0667	wildtype
MR_EGD-0668	mutated
MR_EGD-0669	wildtype
MR_EGD-0671	wildtype
MR_EGD-0672	wildtype
MR_EGD-0675	wildtype
MR_EGD-0676	wildtype
MR_EGD-0677	wildtype
MR_EGD-0687	wildtype
MR_EGD-0688	mutated
MR_EGD-0689	mutated
MR_EGD-0691	wildtype
MR_EGD-0692	wildtype
MR_EGD-0693	wildtype
MR_EGD-0694	wildtype
MR_EGD-0697	wildtype
MR_EGD-0699	wildtype
MR_EGD-0700	mutated
MR_EGD-0702	wildtype
MR_EGD-0703	wildtype
MR_EGD-0705	mutated
MR_EGD-0706	wildtype
MR_EGD-0707	wildtype
MR_EGD-0709	wildtype
MR_EGD-0710	wildtype
MR_EGD-0715	wildtype
MR_EGD-0720	mutated
MR_EGD-0723	wildtype
MR_EGD-0725	wildtype
MR_EGD-0729	mutated
MR_EGD-0734	wildtype
MR_EGD-0735	wildtype
MR_EGD-0736	wildtype
MR_EGD-0737	mutated
MR_EGD-0738	wildtype
MR_EGD-0739	mutated
MR_EGD-0741	wildtype
MR_EGD-0742	wildtype
MR_EGD-0744	mutated
MR_EGD-0745	wildtype
MR_EGD-0747	wildtype
MR_EGD-0753	wildtype
MR_EGD-0754	wildtype
MR_EGD-0757	mutated
MR_EGD-0758	mutated
MR_EGD-0759	wildtype
MR_EGD-0760	wildtype
MR_EGD-0762	wildtype
MR_EGD-0763	wildtype
MR_EGD-0764	wildtype
MR_EGD-0765	wildtype
MR_EGD-0766	wildtype
MR_EGD-0768	wildtype
MR_EGD-0771	mutated

MR_EGD-0772	wildtype
MR_EGD-0773	mutated

Table S2. Hyperparameters used to develop the MC-net.

Sl No.	Training Hyperparameters
1	"_best_ema": "0.8365259113358365",
2	"batch_size": "100",
3	"configuration_manager": "{'data_identifier': 'nnUNetPlans_2d', 'preprocessor_name': 'DefaultPreprocessor', 'batch_size': 100, 'patch_size': [256, 224], 'median_image_size_in_voxels': [233.0, 197.0], 'spacing': [1.0, 1.0], 'normalization_schemes': ['ZScoreNormalization', 'ZScoreNormalization', 'ZScoreNormalization', 'ZScoreNormalization'], 'use_mask_for_norm': [False, False, False, False], 'UNet_class_name': 'PlainConvUNet', 'UNet_base_num_features': 32, 'n_conv_per_stage_encoder': [2, 2, 2, 2, 2, 2], 'n_conv_per_stage_decoder': [2, 2, 2, 2, 2], 'num_pool_per_axis': [5, 5], 'pool_op_kernel_sizes': [[1, 1], [2, 2], [2, 2], [2, 2], [2, 2], [2, 2]], 'conv_kernel_sizes': [[3, 3], [3, 3], [3, 3], [3, 3], [3, 3], [3, 3]], 'unet_max_num_features': 512, 'resampling_fn_data': 'resample_data_or_seg_to_shape', 'resampling_fn_seg': 'resample_data_or_seg_to_shape', 'resampling_fn_data_kwargs': {'is_seg': False, 'order': 3, 'order_z': 0, 'force_separate_z': None}, 'resampling_fn_seg_kwargs': {'is_seg': True, 'order': 1, 'order_z': 0, 'force_separate_z': None}, 'resampling_fn_probabilities': 'resample_data_or_seg_to_shape', 'resampling_fn_probabilities_kwargs': {'is_seg': False, 'order': 1, 'order_z': 0, 'force_separate_z': None}, 'batch_dice': True}",
4	"configuration_name": "2d",
5	"cudnn_version": 8500,
6	"current_epoch": "1250",
7	"dataloader_train": "<nnunetv2.training.data_augmentation.custom_transforms.limited_length_multithreaded_augmenter.LimitedLenWrapper object at 0x2aabf8d86020>",
8	"dataloader_train.generator": "<nnunetv2.training.dataloading.data_loader_2d.nnUNetDataLoader2D object at 0x2aabf8d86b60>",
9	"dataloader_train.num_processes": "100",
10	"dataloader_train.transform": "Compose ([SpatialTransform(independent_scale_for_each_axis = True, p_rot_per_sample = 0.4, p_scale_per_sample = 0.2, p_el_per_sample = 0.2, data_key = 'data', label_key = 'seg', patch_size = [256, 224], patch_center_dist_from_border = None, do_elastic_deform = False, alpha = (0.0, 1000.0), sigma = (10.0, 13.0), do_rotation = True, angle_x = (-3.141592653589793, 3.141592653589793), angle_y = (0, 0), angle_z = (0, 0), do_scale = True, scale = (0.7, 1.43), border_mode_data = 'constant', border_cval_data = 0, order_data = 3, border_mode_seg = 'constant', border_cval_seg = -1, order_seg = 1, random_crop = False, p_rot_per_axis = 0.5, p_independent_scale_per_axis = 1), OneOfTransform(list_of_transforms = [MedianFilterTransform(p_per_sample = 0.2, p_per_channel = 0.5, data_key = 'data', filter_size = (2, 8), same_for_each_channel = False), GaussianBlurTransform(p_per_sample = 0.2, different_sigma_per_channel = True, p_per_channel = 0.5, data_key = 'data', blur_sigma = (0.3, 1.5), different_sigma_per_axis = False, p_isotropic = 0)]), GaussianNoiseTransform(p_per_sample = 0.1, data_key = 'data', noise_variance = (0, 0.1), p_per_channel = 1, per_channel = False), BrightnessTransform(p_per_sample = 0.1, data_key = 'data', mu = 0, sigma = 0.5, per_channel = True, p_per_channel = 0.5), OneOfTransform(list_of_transforms = [ContrastAugmentationTransform(p_per_sample = 0.2, data_key = 'data', contrast_range = (0.5, 2),

	preserve_range = True, per_channel = True, p_per_channel = 0.5), ContrastAugmentationTransform(p_per_sample = 0.2, data_key = 'data', contrast_range = (0.5, 2), preserve_range = False, per_channel = True, p_per_channel = 0.5)]), SimulateLowResolutionTransform(order_upsample = 3, order_downsample = 0, channels = None, per_channel = True, p_per_channel = 0.5, p_per_sample = 0.15, data_key = 'data', zoom_range = (0.25, 1), ignore_axes = None), GammaTransform(p_per_sample = 0.1, retain_stats = True, per_channel = True, data_key = 'data', gamma_range = (0.7, 1.5), invert_image = True), GammaTransform(p_per_sample = 0.1, retain_stats = True, per_channel = True, data_key = 'data', gamma_range = (0.7, 1.5), invert_image = True), MirrorTransform(p_per_sample = 1, data_key = 'data', label_key = 'seg', axes = (0, 1)), BlankRectangleTransform(rectangle_size = [[25, 85], [22, 74]], num_rectangles = (1, 5), force_square = False, p_per_sample = 0.4, p_per_channel = 0.5, apply_to_keys = ('data',), color_fn = <function BlankRectangleTransform.__init__.<locals>.<lambda> at 0x2aabf4b8b2e0>), <batchgenerators.transforms.local_transforms.BrightnessGradientAdditiveTransform object at 0x2aabf8d85960>, <batchgenerators.transforms.local_transforms.LocalGammaTransform object at 0x2aabf8d85930>, SharpeningTransform(p_per_sample = 0.2, p_per_channel = 0.5, data_key = 'data', strength = (0.1, 1), same_for_each_channel = False), RemoveLabelTransform(output_key = 'seg', input_key = 'seg', replace_with = 0, remove_label = -1), RenameTransform(delete_old = True, out_key = 'target', in_key = 'seg'), DownsampleSegForDSTransform2(axes = None, output_key = 'target', input_key = 'target', order = 0, ds_scales = [[1.0, 1.0], [0.5, 0.5], [0.25, 0.25], [0.125, 0.125], [0.0625, 0.0625]]), NumpyToTensor(keys = ['data', 'target'], cast_to = 'float')])",
11	"dataloader_val": "<nnunetv2.training.data_augmentation.custom_transforms.limited_length_multithreaded_augmenter.LimitedLenWrapper object at 0x2aabf8d849d0>",
12	"dataloader_val.generator": "<nnunetv2.training.dataloading.data_loader_2d.nnUNetDataLoader2D object at 0x2aabf8d86da0>",
13	"dataloader_val.num_processes": "100",
14	"dataloader_val.transform": "Compose ([RemoveLabelTransform(output_key = 'seg', input_key = 'seg', replace_with = 0, remove_label = -1), RenameTransform(delete_old = True, out_key = 'target', in_key = 'seg'), DownsampleSegForDSTransform2(axes = None, output_key = 'target', input_key = 'target', order = 0, ds_scales = [[1.0, 1.0], [0.5, 0.5], [0.25, 0.25], [0.125, 0.125], [0.0625, 0.0625]]), NumpyToTensor(keys = ['data', 'target'], cast_to = 'float')])",
15	"dataset_json": "{'channel_names': {'T1': 0, 'T1C': 1, 'T2': 2, 'Flair': 3}, 'labels': {'background': 0, 'mutated': 1, 'wild-type': 2}, 'numTraining': 13660, 'file_ending': '.nii.gz', 'regions_class_order': 'TCIA FeTS002 and EGD MCon data --> SS Tio DA and with N4'}",
16	"device": "cuda:0",
17	"disable_checkpointing": "False",
18	"fold": "1",
19	"folder_with_segs_from_previous_stage": "None",
20	"gpu_name": "NVIDIA A100-PCIE-40GB",
21	"grad_scaler": "<torch.cuda.amp.grad_scaler.GradScaler object at 0x2aabf4b6d900>",
22	"hostname": "NucleusC092",
23	"inference_allowed_mirroring_axes": "(0, 1)",

24	"initial_lr": "0.01",
25	"is_cascaded": "False",
26	"is_ddp": "False",
27	"label_manager": "<nnunetv2.utilities.label_handling.label_handling.LabelManager object at 0x2aabf4b6d870>",
28	"local_rank": "0",
30	"logger": "<nnunetv2.training.logging.nnunet_logger.nnUNetLogger object at 0x2aabf4b6d7b0>",
31	"loss": "DeepSupervisionWrapper(\n (loss): DC_and_CE_loss(\n (ce): RobustCrossEntropyLoss()\n (dc): MemoryEfficientSoftDiceLoss()\n)\n)",
32	"lr_scheduler": "<nnunetv2.training.lr_scheduler.polylr.PolyLRScheduler object at 0x2aabf4b6e6e0>",
33	"my_init_kwargs": "{'plans': {'dataset_name': 'Dataset006_TCIA_FeTS002_EGD_SS_N4_BG_Tio_MCon_data', 'plans_name': 'nnUNetPlans', 'original_median_spacing_after_transp': [1.0, 1.0, 1.0], 'original_median_shape_after_transp': [189, 233, 197], 'image_reader_writer': 'SimpleITKIO', 'transpose_forward': [0, 1, 2], 'transpose_backward': [0, 1, 2], 'configurations': {'2d': {'data_identifier': 'nnUNetPlans_2d', 'preprocessor_name': 'DefaultPreprocessor', 'batch_size': 100, 'patch_size': [256, 224], 'median_image_size_in_voxels': [233.0, 197.0], 'spacing': [1.0, 1.0], 'normalization_schemes': ['ZScoreNormalization', 'ZScoreNormalization', 'ZScoreNormalization', 'ZScoreNormalization'], 'use_mask_for_norm': [False, False, False, False], 'UNet_class_name': 'PlainConvUNet', 'UNet_base_num_features': 32, 'n_conv_per_stage_encoder': [2, 2, 2, 2, 2, 2], 'n_conv_per_stage_decoder': [2, 2, 2, 2, 2], 'num_pool_per_axis': [5, 5], 'pool_op_kernel_sizes': [[1, 1], [2, 2], [2, 2], [2, 2], [2, 2], [2, 2]], 'conv_kernel_sizes': [[3, 3], [3, 3], [3, 3], [3, 3], [3, 3], [3, 3]], 'unet_max_num_features': 512, 'resampling_fn_data': 'resample_data_or_seg_to_shape', 'resampling_fn_seg': 'resample_data_or_seg_to_shape', 'resampling_fn_data_kwargs': {'is_seg': False, 'order': 3, 'order_z': 0, 'force_separate_z': None}, 'resampling_fn_seg_kwargs': {'is_seg': True, 'order': 1, 'order_z': 0, 'force_separate_z': None}, 'resampling_fn_probabilities': 'resample_data_or_seg_to_shape', 'resampling_fn_probabilities_kwargs': {'is_seg': False, 'order': 1, 'order_z': 0, 'force_separate_z': None}, 'batch_dice': True}, '3d_fullres': {'data_identifier': 'nnUNetPlans_3d_fullres', 'preprocessor_name': 'DefaultPreprocessor', 'batch_size': 2, 'patch_size': [192, 256, 192], 'median_image_size_in_voxels': [189.0, 233.0, 197.0], 'spacing': [1.0, 1.0, 1.0], 'normalization_schemes': ['ZScoreNormalization', 'ZScoreNormalization', 'ZScoreNormalization', 'ZScoreNormalization'], 'use_mask_for_norm': [False, False, False, False], 'UNet_class_name': 'PlainConvUNet', 'UNet_base_num_features': 32, 'n_conv_per_stage_encoder': [2, 2, 2, 2, 2, 2], 'n_conv_per_stage_decoder': [2, 2, 2, 2, 2], 'num_pool_per_axis': [5, 5, 5], 'pool_op_kernel_sizes': [[1, 1, 1], [2, 2, 2], [2, 2, 2], [2, 2, 2], [2, 2, 2], [2, 2, 2]], 'conv_kernel_sizes': [[3, 3, 3], [3, 3, 3], [3, 3, 3], [3, 3, 3], [3, 3, 3], [3, 3, 3]], 'unet_max_num_features': 320, 'resampling_fn_data': 'resample_data_or_seg_to_shape', 'resampling_fn_seg': 'resample_data_or_seg_to_shape', 'resampling_fn_data_kwargs': {'is_seg': False, 'order': 3, 'order_z': 0, 'force_separate_z': None}, 'resampling_fn_seg_kwargs': {'is_seg': True, 'order': 1, 'order_z': 0, 'force_separate_z': None}, 'resampling_fn_probabilities': 'resample_data_or_seg_to_shape', 'resampling_fn_probabilities_kwargs': {'is_seg': False, 'order': 1, 'order_z': 0, 'force_separate_z': None}, 'batch_dice': False}}, 'experiment_planner_used': 'ExperimentPlanner', 'label_manager': 'LabelManager', 'foreground_intensity_properties_per_channel': {'0': {'max': 8449.001953125, 'mean': 876.2181396484375, 'median': 587.5035400390625, 'min': -62.86849594116211, 'percentile_00_5': 0.0, 'percentile_99_5': 5023.051276855462, 'std': 860.8373413085938}, '1': {'max': 22296.71484375, 'mean': 1010.2324829101562,

	'median': 643.4981079101562, 'min': -217.8645782470703, 'percentile_00_5': 0.0, 'percentile_99_5': 6990.7314453125, 'std': 1197.094970703125}, '2': {'max': 13443.9501953125, 'mean': 906.3700561523438, 'median': 697.4663696289062, 'min': -311.94610595703125, 'percentile_00_5': 0.0, 'percentile_99_5': 4928.394047851558, 'std': 798.8444213867188}, '3': {'max': 11528.87890625, 'mean': 741.3021240234375, 'median': 524.4417724609375, 'min': -217.5197296142578, 'percentile_00_5': 0.0, 'percentile_99_5': 3948.712703857367, 'std': 668.06103515625}}}, 'configuration': '2d', 'fold': 1, 'dataset_json': {'channel_names': {'T1': 0, 'T1C': 1, 'T2': 2, 'Flair': 3}, 'labels': {'background': 0, 'mutated': 1, 'wild-type': 2}, 'numTraining': 13660, 'file_ending': '.nii.gz', 'regions_class_order': 'TCIA FeTS002 and EGD MCon data --> SS Tio DA and with N4'}, 'unpack_dataset': True, 'device': device(type='cuda')}",
34	"network": "PlainConvUNet",
35	"num_epochs": "2000",
36	"num_input_channels": "4",
37	"num_iterations_per_epoch": "250",
38	"num_val_iterations_per_epoch": "50",
39	"optimizer": "SGD (\nParameter Group 0\n dampening: 0\n differentiable: False\n foreach: None\n initial_lr: 0.01\n lr: 0.004141416859964053\n maximize: False\n momentum: 0.99\n nesterov: True\n weight_decay: 3e-05\n)",
41	"output_folder_base": "/project/radiology/ANSIR_lab/CLINICAL/UTSW/BrainTumor/shared/Chandan_processed_subjects/nnUNet_V2_database/nnUNet_trained_models/Dataset006_TCIA_FeTS002_EGD_SS_N4_BG_Tio_MCon_data/nnUNetTrainerDA5_2000epochs__nnUNetPlans__2d",
42	"oversample_foreground_percent": "0.33",
43	"plans_manager": "{'dataset_name': 'Dataset006_TCIA_FeTS002_EGD_SS_N4_BG_Tio_MCon_data', 'plans_name': 'nnUNetPlans', 'original_median_spacing_after_transp': [1.0, 1.0, 1.0], 'original_median_shape_after_transp': [189, 233, 197], 'image_reader_writer': 'SimpleITKIO', 'transpose_forward': [0, 1, 2], 'transpose_backward': [0, 1, 2], 'configurations': {'2d': {'data_identifier': 'nnUNetPlans_2d', 'preprocessor_name': 'DefaultPreprocessor', 'batch_size': 100, 'patch_size': [256, 224], 'median_image_size_in_voxels': [233.0, 197.0], 'spacing': [1.0, 1.0], 'normalization_schemes': ['ZScoreNormalization', 'ZScoreNormalization', 'ZScoreNormalization', 'ZScoreNormalization'], 'use_mask_for_norm': [False, False, False, False], 'UNet_class_name': 'PlainConvUNet', 'UNet_base_num_features': 32, 'n_conv_per_stage_encoder': [2, 2, 2, 2, 2, 2], 'n_conv_per_stage_decoder': [2, 2, 2, 2, 2], 'num_pool_per_axis': [5, 5], 'pool_op_kernel_sizes': [[1, 1], [2, 2], [2, 2], [2, 2], [2, 2], [2, 2]], 'conv_kernel_sizes': [[3, 3], [3, 3], [3, 3], [3, 3], [3, 3], [3, 3]], 'unet_max_num_features': 512, 'resampling_fn_data': 'resample_data_or_seg_to_shape', 'resampling_fn_seg': 'resample_data_or_seg_to_shape', 'resampling_fn_data_kwargs': {'is_seg': False, 'order': 3, 'order_z': 0, 'force_separate_z': None}, 'resampling_fn_seg_kwargs': {'is_seg': True, 'order': 1, 'order_z': 0, 'force_separate_z': None}, 'resampling_fn_probabilities': 'resample_data_or_seg_to_shape', 'resampling_fn_probabilities_kwargs': {'is_seg': False, 'order': 1, 'order_z': 0, 'force_separate_z': None}, 'batch_dice': True}, '3d_fullres': {'data_identifier': 'nnUNetPlans_3d_fullres', 'preprocessor_name': 'DefaultPreprocessor', 'batch_size': 2, 'patch_size': [192, 256, 192], 'median_image_size_in_voxels': [189.0, 233.0, 197.0], 'spacing': [1.0, 1.0, 1.0], 'normalization_schemes': ['ZScoreNormalization', 'ZScoreNormalization', 'ZScoreNormalization', 'ZScoreNormalization'], 'use_mask_for_norm': [False, False, False, False], 'UNet_class_name': 'PlainConvUNet', 'UNet_base_num_features': 32,

	'n_conv_per_stage_encoder': [2, 2, 2, 2, 2, 2], 'n_conv_per_stage_decoder': [2, 2, 2, 2, 2], 'num_pool_per_axis': [5, 5, 5], 'pool_op_kernel_sizes': [[1, 1, 1], [2, 2, 2], [2, 2, 2], [2, 2, 2], [2, 2, 2], [2, 2, 2]], 'conv_kernel_sizes': [[3, 3, 3], [3, 3, 3], [3, 3, 3], [3, 3, 3], [3, 3, 3], [3, 3, 3]], 'unet_max_num_features': 320, 'resampling_fn_data': 'resample_data_or_seg_to_shape', 'resampling_fn_seg': 'resample_data_or_seg_to_shape', 'resampling_fn_data_kwargs': {'is_seg': False, 'order': 3, 'order_z': 0, 'force_separate_z': None}, 'resampling_fn_seg_kwargs': {'is_seg': True, 'order': 1, 'order_z': 0, 'force_separate_z': None}, 'resampling_fn_probabilities': 'resample_data_or_seg_to_shape', 'resampling_fn_probabilities_kwargs': {'is_seg': False, 'order': 1, 'order_z': 0, 'force_separate_z': None}, 'batch_dice': False}}, 'experiment_planner_used': 'ExperimentPlanner', 'label_manager': 'LabelManager', 'foreground_intensity_properties_per_channel': {'0': {'max': 8449.001953125, 'mean': 876.2181396484375, 'median': 587.5035400390625, 'min': -62.86849594116211, 'percentile_00_5': 0.0, 'percentile_99_5': 5023.051276855462, 'std': 860.8373413085938}, '1': {'max': 22296.71484375, 'mean': 1010.2324829101562, 'median': 643.4981079101562, 'min': -217.8645782470703, 'percentile_00_5': 0.0, 'percentile_99_5': 6990.7314453125, 'std': 1197.094970703125}, '2': {'max': 13443.9501953125, 'mean': 906.3700561523438, 'median': 697.4663696289062, 'min': -311.94610595703125, 'percentile_00_5': 0.0, 'percentile_99_5': 4928.394047851558, 'std': 798.8444213867188}, '3': {'max': 11528.87890625, 'mean': 741.3021240234375, 'median': 524.4417724609375, 'min': -217.5197296142578, 'percentile_00_5': 0.0, 'percentile_99_5': 3948.712703857367, 'std': 668.06103515625}}}",
46	"save_every": "50",
47	"torch_version": "2.0.0",
48	"unpack_dataset": "True",
49	"was_initialized": "True",
50	"weight_decay": "3e-05"
51	"_best_ema": "0.8365259113358365",
52	"batch_size": "100",
53	"configuration_manager": "{'data_identifier': 'nnUNetPlans_2d', 'preprocessor_name': 'DefaultPreprocessor', 'batch_size': 100, 'patch_size': [256, 224], 'median_image_size_in_voxels': [233.0, 197.0], 'spacing': [1.0, 1.0], 'normalization_schemes': ['ZScoreNormalization', 'ZScoreNormalization', 'ZScoreNormalization', 'ZScoreNormalization'], 'use_mask_for_norm': [False, False, False, False], 'UNet_class_name': 'PlainConvUNet', 'UNet_base_num_features': 32, 'n_conv_per_stage_encoder': [2, 2, 2, 2, 2, 2], 'n_conv_per_stage_decoder': [2, 2, 2, 2, 2], 'num_pool_per_axis': [5, 5], 'pool_op_kernel_sizes': [[1, 1], [2, 2], [2, 2], [2, 2], [2, 2], [2, 2]], 'conv_kernel_sizes': [[3, 3], [3, 3], [3, 3], [3, 3], [3, 3], [3, 3]], 'unet_max_num_features': 512, 'resampling_fn_data': 'resample_data_or_seg_to_shape', 'resampling_fn_seg': 'resample_data_or_seg_to_shape', 'resampling_fn_data_kwargs': {'is_seg': False, 'order': 3, 'order_z': 0, 'force_separate_z': None}, 'resampling_fn_seg_kwargs': {'is_seg': True, 'order': 1, 'order_z': 0, 'force_separate_z': None}, 'resampling_fn_probabilities': 'resample_data_or_seg_to_shape', 'resampling_fn_probabilities_kwargs': {'is_seg': False, 'order': 1, 'order_z': 0, 'force_separate_z': None}, 'batch_dice': True}",
54	"configuration_name": "2d",
55	"cudnn_version": 8500,
56	"current_epoch": "1250",

57	"dataloader_train": "<nnunetv2.training.data_augmentation.custom_transforms.limited_length_multithreaded_augmenter.LimitedLenWrapper object at 0x2aabf8d86020>",
58	"dataloader_train.generator": "<nnunetv2.training.dataloading.data_loader_2d.nnUNetDataLoader2D object at 0x2aabf8d86b60>",
59	"dataloader_train.num_processes": "100",
60	"dataloader_train.transform": "Compose ([SpatialTransform(independent_scale_for_each_axis = True, p_rot_per_sample = 0.4, p_scale_per_sample = 0.2, p_el_per_sample = 0.2, data_key = 'data', label_key = 'seg', patch_size = [256, 224], patch_center_dist_from_border = None, do_elastic_deform = False, alpha = (0.0, 1000.0), sigma = (10.0, 13.0), do_rotation = True, angle_x = (-3.141592653589793, 3.141592653589793), angle_y = (0, 0), angle_z = (0, 0), do_scale = True, scale = (0.7, 1.43), border_mode_data = 'constant', border_cval_data = 0, order_data = 3, border_mode_seg = 'constant', border_cval_seg = -1, order_seg = 1, random_crop = False, p_rot_per_axis = 0.5, p_independent_scale_per_axis = 1), OneOfTransform(list_of_transforms = [MedianFilterTransform(p_per_sample = 0.2, p_per_channel = 0.5, data_key = 'data', filter_size = (2, 8), same_for_each_channel = False), GaussianBlurTransform(p_per_sample = 0.2, different_sigma_per_channel = True, p_per_channel = 0.5, data_key = 'data', blur_sigma = (0.3, 1.5), different_sigma_per_axis = False, p_isotropic = 0)]), GaussianNoiseTransform(p_per_sample = 0.1, data_key = 'data', noise_variance = (0, 0.1), p_per_channel = 1, per_channel = False), BrightnessTransform(p_per_sample = 0.1, data_key = 'data', mu = 0, sigma = 0.5, per_channel = True, p_per_channel = 0.5), OneOfTransform(list_of_transforms = [ContrastAugmentationTransform(p_per_sample = 0.2, data_key = 'data', contrast_range = (0.5, 2), preserve_range = True, per_channel = True, p_per_channel = 0.5), ContrastAugmentationTransform(p_per_sample = 0.2, data_key = 'data', contrast_range = (0.5, 2), preserve_range = False, per_channel = True, p_per_channel = 0.5)]), SimulateLowResolutionTransform(order_upsample = 3, order_downsample = 0, channels = None, per_channel = True, p_per_channel = 0.5, p_per_sample = 0.15, data_key = 'data', zoom_range = (0.25, 1), ignore_axes = None), GammaTransform(p_per_sample = 0.1, retain_stats = True, per_channel = True, data_key = 'data', gamma_range = (0.7, 1.5), invert_image = True), GammaTransform(p_per_sample = 0.1, retain_stats = True, per_channel = True, data_key = 'data', gamma_range = (0.7, 1.5), invert_image = True), MirrorTransform(p_per_sample = 1, data_key = 'data', label_key = 'seg', axes = (0, 1)), BlankRectangleTransform(rectangle_size = [[25, 85], [22, 74]], num_rectangles = (1, 5), force_square = False, p_per_sample = 0.4, p_per_channel = 0.5, apply_to_keys = ('data',), color_fn = <function BlankRectangleTransform.__init__.<locals>.<lambda> at 0x2aabf4b8b2e0>), <batchgenerators.transforms.local_transforms.BrightnessGradientAdditiveTransform object at 0x2aabf8d85960>, <batchgenerators.transforms.local_transforms.LocalGammaTransform object at 0x2aabf8d85930>, SharpeningTransform(p_per_sample = 0.2, p_per_channel = 0.5, data_key = 'data', strength = (0.1, 1), same_for_each_channel = False), RemoveLabelTransform(output_key = 'seg', input_key = 'seg', replace_with = 0, remove_label = -1), RenameTransform(delete_old = True, out_key = 'target', in_key = 'seg'), DownsampleSegForDSTransform2(axes = None, output_key = 'target', input_key = 'target', order = 0, ds_scales = [[1.0, 1.0], [0.5, 0.5], [0.25, 0.25], [0.125, 0.125], [0.0625, 0.0625]]), NumpyToTensor(keys = ['data', 'target'], cast_to = 'float')])",

61	"dataloader_val": "<nnunetv2.training.data_augmentation.custom_transforms.limited_length_multithreaded_augmenter.LimitedLenWrapper object at 0x2aabf8d849d0>",