

Multi-Modal Graph Neural Network with Transformer-Guided Adaptive Diffusion for Preclinical Alzheimer Classification (Supplementary Material)

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Table 1. Demographics of the preclinical ADNI dataset.

Category	CN	SMC	EMCI
# of subjects	333	172	414
Gender (Male / Female)	156 / 177	62 / 110	240 / 174
Age (Mean±Std)	73.0 ± 5.9	71.7 ± 5.2	71.0 ± 7.7

Table 2. Implementation details between GTAD and baselines.

Modalities	Methods	Hidden Units	Learning Rate	Dropout Rate	Weight Decay	Scale's Regularization (α)	Scale's Learning Rate (β)
Cortical Thickness & β -Amyloid	GCN/GAT/GraphHeat/GDC/NodeFormer/DIFFormer/SGFormer	16	1e-2	5e-1	5e-4	-	-
	ADC	16	1e-3	5e-1	5e-4	-	-
	LSAP	16	1e-3	5e-1	5e-4	1	1e-2
	GTAD	16	1e-2	5e-1	5e-4	1	1e-2
Cortical Thickness & FDG	GCN/GAT/GraphHeat/GDC/NodeFormer/DIFFormer/SGFormer	16	1e-2	5e-1	5e-4	-	-
	ADC	16	1e-3	5e-1	5e-4	-	-
	LSAP/GTAD	16	1e-2	5e-1	5e-4	1	1e-2
β -Amyloid & FDG	GCN/GAT/GraphHeat/GDC/NodeFormer/DIFFormer/SGFormer	16	1e-2	5e-1	5e-4	-	-
	ADC	16	1e-3	5e-1	5e-4	-	-
	LSAP/GTAD	16	1e-2	5e-1	5e-4	1	1e-2
All Imaging features	GCN/GAT/GraphHeat/GDC/ADC/NodeFormer/DIFFormer/SGFormer	16	1e-2	5e-1	5e-4	-	-
	LSAP	16	1e-3	5e-1	5e-4	1	1e-2
	GTAD	16	1e-2	5e-1	5e-4	1	1e-2

Table 3. Additional implementation details for GTAD.

Adaptive Convolution Block			Self-Attention Block				Classifier		
Z	σ_z	Initial Scale	P	Feed-Forward Network			Layer	Hidden	Activation
				Layers	Hidden	Activation			
2	ReLU	3	1	2	16	ReLU	2	16	ReLU

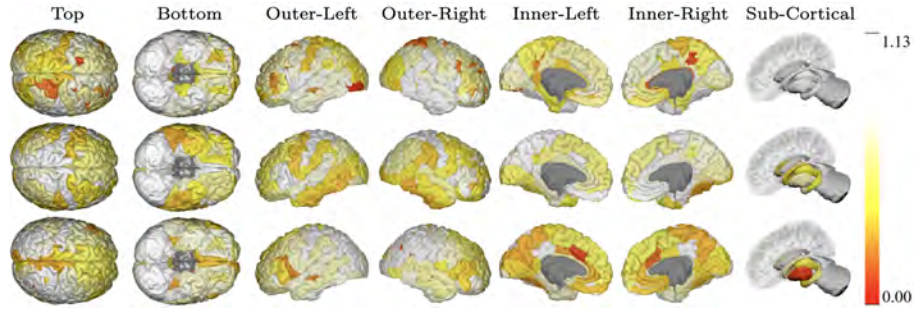


Fig. 1. Visualization of learned scales on the cortical regions of a brain using three biomarkers such as cortical thickness (top), β -Amyloid (middle) and FDG (bottom).

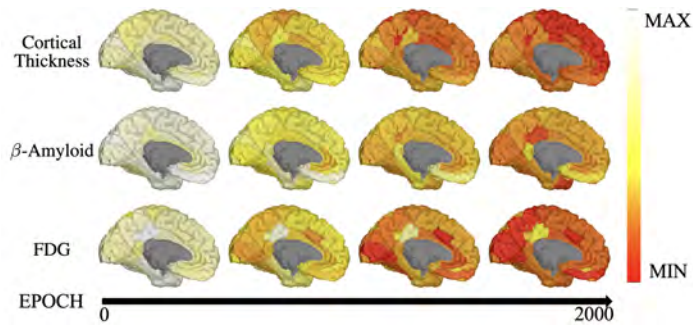


Fig. 2. Visualization of adjustment of the trained scales on the cortical regions of a brain at training phase with first fold depending on the modalities.