B SUPPLEMENT

B.1 Details of Datasets

The group dividing strategy of the two public datasets and detailed information of the clinical dataset are shown in Tab. 4 and 3. The sample frequency of all the patients is 1000Hz.

Table 3: Details information of the clinical dataset.

Patient id	Time (hours)	#Electrodes	#Channels	Positive sample ratio	#Samples
0	121.4	10	126	0.0028	180632184
1	34.7	4	52	0.0020	21642853
2	167.7	10	126	0.0011	241488147
3	73.7	8	116	0.0077	102649651
4	161.3	8	112	0.0037	195457035
5	54.3	7	93	0.0016	43684998
6	125.2	5	59	0.0167	70605073

B.2 Setup of Experiments

Setup on public datasets. With 6 groups of patients for each public dataset, we adopt a "4-1-1 setting" to train, validate and test models: randomly choose 5 groups as the source domains, 4 of which are used for model training and 1 for validation, and the last 1 group of patients serve as the test dataset. The experiments are repeated on all groups to test the average performance of models.
Setup on clinical dataset. For the patients of the clinical SEEG dataset, we conduct experiments under a "5-1-1 setting": the training data comes from 5 patients, and the validation data comes from 1 patient, which together form the source domains; and another 1 patient is regarded as target domain for testing. We also repeat the experiments on all patients to obtain an overall results.

B.3 Brain Region Enhancement Results (Full)

Due to the space limitation, only the confusion matrix of multi-classification of patient 4 is given in the Appendix. Here we show the confusion matrices of multi-classification of all the patients from Fig. **6** to Fig. 12.

Table 4: Group dividing details of two public datasets.

Dataset	MAYO				Dataset	FNUSA			
	Patient id	Artifacts	Seizure	Normal		Patient id	Artifacts	Seizure	Normal
Group1	0	2318	0	330	Group7	1	0	1912	0
	18	1700	0	3126		5	5059	1527	5452
	21	58	3432	0					
	Total	4076	3432	3456		Total	5059	3439	5452
Group2	1	0	883	8653	Group8	2	2892	1657	7809
	9	740	0	0		9	0	6750	0
	19	5613	0	0					
	Total	6353	883	8653		Total	2892	8407	7809
Group3	2	466	1923	399	Group9	3	12	8076	0
	5	1002	0	6583		4	8463	0	0
	16	3699	0	177		12	1343	7710	38217
	Total	5167	1923	7159		Total	9818	15786	38217
Group4	3	4636	0	2057	Group10	6	0	1554	962
	4	2063	0	790		7	5416	7738	2689
	23	761	2747	644					
	Total	7460	2747	3491		Total	5416	9292	3651
Group5	6	12873	0	0	Group11	8	18	1896	20860
	7	0	0	25951		10	5786	4260	1545
	8	0	2816	0					
	Total	12873	2816	25951		Total	5804	6156	22405
Group6	14	0	3426	498	Group12	11	3339	4072	2890
	17	4096	0	6098		13	181	5318	14136
	20	1278	0	1424					
	Total	5374	3426	8020		Total	3520	9390	17026

Figure 6: Brain region enhancement result on patient 0 in the clinical dataset.

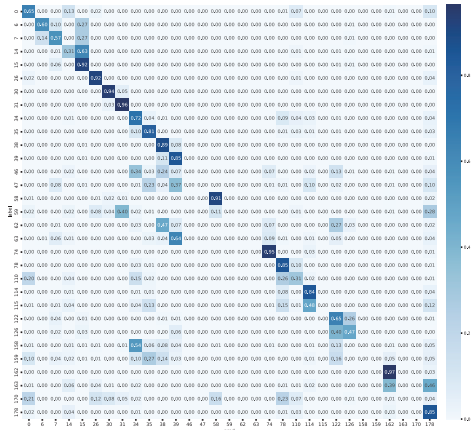

Figure 7: Brain region enhancement result on patient 1 in the clinical dataset.

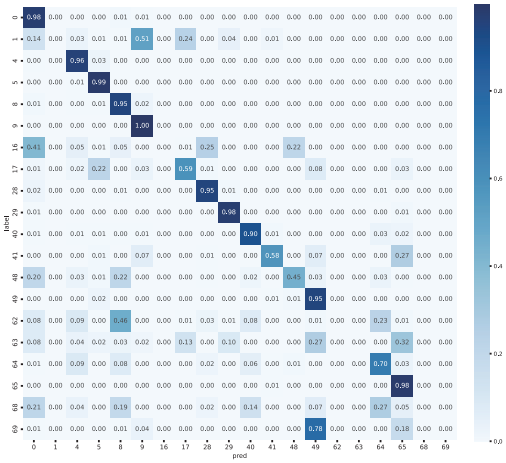

Figure 8: Brain region enhancement result on patient 2 in the clinical dataset.

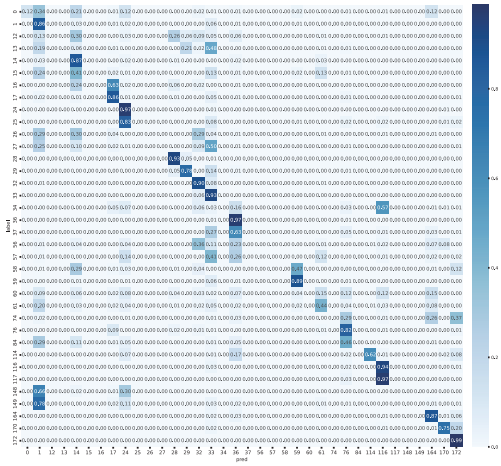

Figure 9: Brain region enhancement result on patient 3 in the clinical dataset.

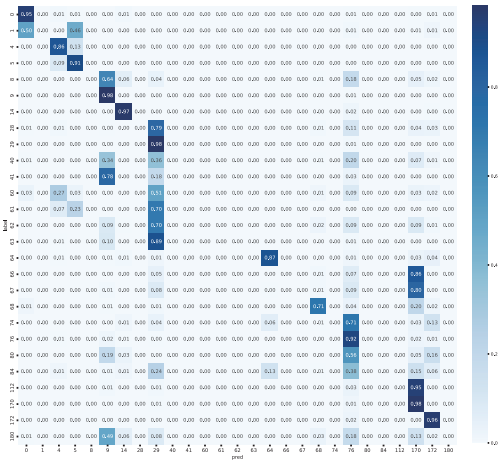

Figure 10: Brain region enhancement result on patient 4 in the clinical dataset.

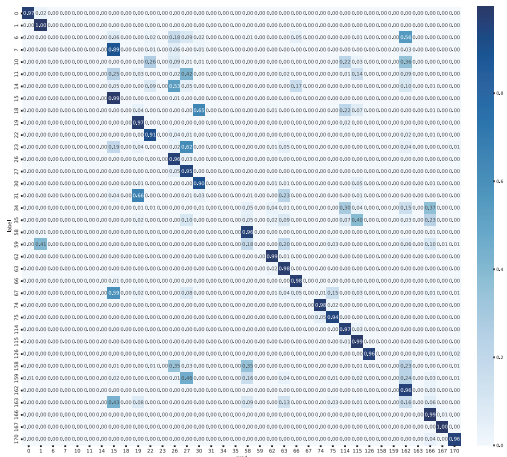

Figure 11: Brain region enhancement result on patient 5 in the clinical dataset.

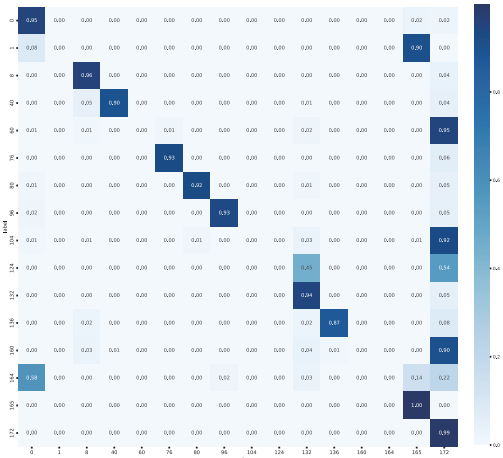

Figure 12: Brain region enhancement result on patient 6 in the clinical dataset.