### ■ IDH

### ■ 超参

Batch: 2Ir: 1e-5

Adam.weight\_decay=3e-4

#### ■ train&&test

### ■ fold1

epoch	Loss	ACC	SN	SP	PPV	NPV	AUC
Train	0.527783	0.773869	0.862385	0.666667	0.758065	0.800000	0.764526
Test	0.482531	0.857143	0.806452	0.944444	0.961538	0.739130	0.875448
Train	0.407586	0.839196	0.840708	0.837209	0.871560	0.800000	0.838959
Test	0.466795	0.836735	0.766667	0.947368	0.958333	0.720000	0.857018

#### ■ fold2

epoch	Loss	ACC	SN	SP	PPV	NPV	AUC
Train	0.479684	0.804020	0.810345	0.795181	0.846947	0.750000	0.802763
Test	0.512064	0.816327	0.800000	0.833333	0.833333	0.800000	0.816667
Train	0.405435	0.859296	0.867257	0.848837	0.882883	0.829545	0.858047
Test	0.487208	0.795918	0.800000	0.947368	0.958333	0.714286	0.857018

#### ■ fold3

epoch	Loss	ACC	SN	SP	PPV	NPV	AUC
Train	0.460087	0.783920	0.782609	0.785714	0.833333	0.725275	0.784161
Test	0.603720	0.795918	0.727273	0.937500	0.960000	0.625000	0.832386
Train	0.398734	0.874372	0.876106	0.872093	0.900000	0.842697	0.874100
Test	0.613697	0.775510	0.766667	0.789474	0.851852	0.681818	0.778070

#### ■ fold4

epoch	Loss	ACC	SN	SP	PPV	NPV	AUC
Train	0.269791	0.919598	0.923729	0.913589	0.939655	0.891566	0.918655
Test	0.455463	0.857143	0.750000	0.960000	0.947368	0.800000	0.855000
Train	0.155554	0.979899	0.982301	0.976744	0.982301	0.976744	0.979523
Test	0.461246	0.816327	0.741935	0.944444	0.958333	0.600000	0.841390

epoch	Loss	ACC	SN	SP	PPV	NPV	AUC

Train	0.348581	0.854271	0.860870	0.845238	0.883929	0.816092	0.853054
Test	0.738536	0.836735	0.857143	0.809524	0.857143	0.809524	0.833333
Train	0.101878	0.984925	0.991071	0.977011	0.982301	0.988372	0.984041
Test	0.779046	0.897959	0.916667	0.880000	0.880000	0.916667	0.898333

#### ■ LGG&&GBM

### ■ 超参

Batch: 2Ir: 1e-5

Adam.weight\_decay=3e-4

#### ■ train&&test

### ■ fold1

epoch	Loss	ACC	SN	SP	PPV	NPV	AUC
Train	0.139407	0.962766	0.947368	0.978495	0.978261	0.947917	0.962932
Test	0.410613	0.893617	0.956522	0.833333	0.846154	0.952381	0.894928
Train	0.066111	0.984043	0.976190	0.990385	0.987952	0.980952	0.983288
Test	0.446400	0.914894	0.857143	0.961538	0.947368	0.892857	0.909341

### ■ fold2

epoch	Loss	ACC	SN	SP	PPV	NPV	AUC
Train	0.203756	0.920213	0.905882	0.932039	0.916667	0.923077	0.918961
Test	0.358310	0.893617	0.863636	0.920000	0.904762	0.884615	0.891818

#### ■ fold3

epoch	Loss	ACC	SN	SP	PPV	NPV	AUC
Train	0.266500	0.898936	0.883721	0.911765	0.894118	0.902913	0.897743
Test	0.457553	0.914894	0.904762	0.923077	0.904762	0.923077	0.913919
Train	0.216519	0.936170	0.966292	0.909091	0.905263	0.967742	0.937692
Test	0.494623	0.914894	0.950000	0.888889	0.863636	0.960000	0.919444

epoch	Loss	ACC	SN	SP	PPV	NPV	AUC
Train	0.260044	0.909574	0.921348	0.898990	0.891304	0.927083	0.910169
Test	0.274200	0.936170	0.950000	0.925926	0.904762	0.961538	0.937963
Train	0.176395	0.946809	0.952941	0.941748	0.931034	0.960396	0.947344

Test	0.293002	0.893617	0.818182	0.960000	0.947368	0.857143	0.889091	

### ■ fold5

epoch	Loss	ACC	SN	SP	PPV	NPV	AUC
Train	0.158733	0.962766	0.952941	0.970874	0.964286	0.961538	0.961907
Test	0.492742	0.893617	0.818182	0.960000	0.947368	0.857143	0.889091
Train	0.098261	0.973404	0.967391	0.979167	0.978022	0.969072	0.973279
Test	0.477682	0.914894	0.956522	0.875000	0.880000	0.954545	0.915761

### ■ HGG&&LGG

### ■ 超参

Batch: 2Ir: 1e-5

Adam.weight\_decay=3e-4

■ train&&test

#### ■ fold1

epoch	Loss	ACC	SN	SP	PPV	NPV	AUC
Train	0.270730	0.904348	0.870588	0.924138	0.870588	0.924138	0.897363
Test	0.359716	0.859649	0.944444	0.820513	0.708333	0.969697	0.882479
Train	0.328657	0.860870	0.752941	0.924138	0.853333	0.864516	0.838540
Test	0.311255	0.912281	0.842105	0.947368	0.888889	0.923077	0.894737

#### ■ fold2

epoch	Loss	ACC	SN	SP	PPV	NPV	AUC
Train	0.176434	0.956522	0.920455	0.978873	0.964286	0.952055	0.949664
Test	0.462911	0.912281	0.952381	0.888889	0.833333	0.969697	0.920635

#### ■ fold3

epoch	Loss	ACC	SN	SP	PPV	NPV	AUC
Train	0.271616	0.886957	0.835294	0.917241	0.855422	0.904762	0.876268
Test	0.519134	0.877193	0.842105	0.894737	0.800000	0.918919	0.868421

epoch	Loss	ACC	SN	SP	PPV	NPV	AUC
Train	0.367159	0.808696	0.774194	0.832117	0.757895	0.844444	0.803155

Test	0.345110	0.877193	0.850000	0.891892	0.809524	0.916667	0.870946
Train	0.340885	0.852174	0.802326	0.881944	0.802326	0.881944	0.842135
Test	0.453603	0.771930	0.900000	0.702703	0.620690	0.928571	0.801351

### ■ AG&&GBM

■ 超参

Batch: 2Ir: 1e-4

■ dropout=0.2

Adam.weight\_decay=3e-4

train&&test

■ fold1

epoch	Loss	ACC	SN	SP	PPV	NPV	AUC
Train	0.584346	0.673611	0.834951	0.268293	0.741379	0.392857	0.551622
Test	0.519843	0.861111	0.925926	0.666667	0.892857	0.750000	0.796296
Train	0.514994	0.777778	0.858491	0.552632	0.842593	0.583333	0.705561
Test	0.524122	0.805556	0.814815	0.777778	0.916667	0.583333	0.796296

# ■ fold2

epoch	Loss	ACC	SN	SP	PPV	NPV	AUC
Train	0.466264	0.784722	0.879630	0.268293	0.500000	0.840708	0.689815
Test	0.572299	0.694444	0.666667	0.666667	0.777778	0.900000	0.722222

### ■ fold3

epoch	Loss	ACC	SN	SP	PPV	NPV	AUC
Train	0.508489	0.833333	0.932039	0.585366	0.849558	0.774194	0.758702
Test	0.499192	0.833333	0.956522	0.615385	0.814815	0.888889	0.785953

#### ■ fold4

epoch	Loss	ACC	SN	SP	PPV	NPV	AUC
Train	0.530673	0.750000	0.828283	0.577778	0.811881	0.604651	0.703030
Test	0.558419	0.805556	0.920000	0.545455	0.821429	0.750000	0.732727

epoch	Loss	ACC	SN	SP	PPV	NPV	AUC
Train	0.436544	0.763889	0.865979	0.553191	0.800000	0.666667	0.709585

Test	0.501415	0.805556	0.884615	0.600000	0.851852	0.666667	0.742308
Train	0.390288	0.805556	0.884615	0.600000	0.851852	0.666667	0.742308
Test	0.513451	0.777778	0.875000	0.583333	0.807692	0.700000	0.729167

#### Ki67

### ■ 超参

Batch: 2Ir: 3e-4

■ dropout=0.2

Adam.weight\_decay=3e-4

#### ■ train&&test

#### ■ fold1

epoch	Loss	ACC	SN	SP	PPV	NPV	AUC
Train	0.569176	0.775510	0.805825	0.741935	0.775701	0.775281	0.773880
Test	0.595717	0.788462	0.642857	0.958333	0.947368	0.696970	0.800595

## ■ fold2

epoch	Loss	ACC	SN	SP	PPV	NPV	AUC
Train	0.675597	0.582915	0.812500	0.287356	0.594771	0.543478	0.549928
Test	0.644092	0.734694	0.687500	0.823529	0.880000	0.583333	0.755515

### ■ fold3

epoch	Loss	ACC	SN	SP	PPV	NPV	AUC
Train	0.594441	0.668342	0.752212	0.5581140	0.691057	0.631579	0.655176
Test	0.615673	0.755102	0.750000	0.7661905	0.807692	0.695652	0.755952

#### ■ fold4

epoch	Loss	ACC	SN	SP	PPV	NPV	AUC
Train	0.631784	0.653266	0.620690	0.698795	0.742268	0.568627	0.659742
Test	0.549262	0.795918	0.750000	0.840000	0.818182	0.777778	0.795000
Train	0.623292	0.683417	0.734513	0.616279	0.715517	0.638554	0.675396
Test	0.494267	0.693878	0.774194	0.555556	0.750000	0.588235	0.664875

epoch	Loss	ACC	SN	SP	PPV	NPV	AUC
Train	0.554223	0.698492	0.689655	0.710843	0.769231	0.621053	0.700249
Test	0.588917	0.816327	0.833333	0.800000	0.800000	0.833333	0.816667
Train	0.623292	0.683417	0.734513	0.616279	0.715517	0.638554	0.675396
Test	0.494267	0.693878	0.774194	0.555556	0.750000	0.588235	0.664875