

Demonstration

User Story: As a radiologist, I need a way to automatically process files for diagnosis *from the format in which they are used in the clinic* to ensure efficiency in my already-overextended workload.

We have successfully formatted and preprocessed the Kaggle dataset for input into PENet.

parse_rsna_data.py

Input:

- CT Pulmonary Angiography scans (DICOM)
- CSV file with StudyInstanceUID, SeriesInstanceUID, SOPInstanceUID

Output:

- series_list.pkl
- data.hdf5

parse_rsna_data.py

```
(envs)[meganmp@scc-k01 rsna]$ python parse_rsna_data.py
/projectnb/ece601/kaggle-pulmonary-embolism/meganmp/.conda/envs/lib/python3.6/site-packages/h5py/_i
: Conversion of the second argument of issubdtype from `float` to `np.floating` is deprecated. In fu
s `np.float64 == np.dtype(float).type`.
from ._conv import register_converters as _register_converters
100%|#####| 650/650
```

parse_rsna_data.py output

```
[meganmp@scc-c13 meganmp]$ cd test
[meganmp@scc-c13 test]$ ls
archive  data.hdf5  series_list.pkl
```

Run_test_rsna.sh

Input:

- series_list.pkl

Output:

- preds.pkl

run_test_rsna.sh

```
Stage 1
Stage 2
Stage 3
Stage 4
 0%|
/projectnb/ece601/kaggle-pulmonary-embolism/meganmp/.conda/envs/lib/python3.6/site-packages/tor
arning: nn.functional.sigmoid is deprecated. Use torch.sigmoid instead.
  warnings.warn("nn.functional.sigmoid is deprecated. Use torch.sigmoid instead.")
47%|#####4 | 2328/4907
```

```
Get max prob
100%|#####| 650/650
Saving predictions to pickle files
```

run_test_rsna.sh output

```
[(envs) [meganmp@scc-c13 bu_20201102_113219]$ ls
preds.pickle
```

```
>>> for key in data.keys():
...     print('{}\t{}'.format(key, data[key]))
...
b7790ec38aaf      {'label': 0, 'pred': 0.8295624256134033}
0402afec0b08      {'label': 0, 'pred': 0.2151593267917633}
9b555f06f486      {'label': 0, 'pred': 0.3412463068962097}
af5cf805065e      {'label': 0, 'pred': 0.37278223037719727}
4e28d73a20b7      {'label': 0, 'pred': 0.3647671043872833}
e691f739c418      {'label': 0, 'pred': 0.511766791343689}
cf08033f31ea      {'label': 0, 'pred': 0.1854744553565979}
557199635c70      {'label': 0, 'pred': 0.24036115407943726}
93679ed29ca8      {'label': 0, 'pred': 0.5432394742965698}
90b012397be4      {'label': 0, 'pred': 0.4250437915325165}
69b3e1e314f5      {'label': 0, 'pred': 0.4437997043132782}
7153d75d63f2      {'label': 0, 'pred': 0.28959113359451294}
```