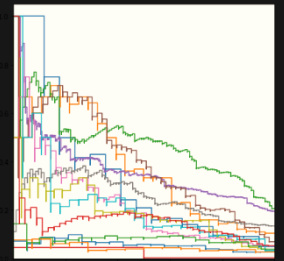


EVALUATION OF DIAGNOSTIC MODELS

Kimhann Chon | Certified TensorFlow Developer
MSc, University of Ulsan, South Korea
kimchannchon101@gmail.com



1. Packages

numpy, matplotlib, pandas, sklearn.

2. Overview

	Cardiomegaly	Emphysema	Effusion	Hernia	Infiltration	Mass	Nodule	Atelectasis	Pneumothorax	Pleural_Thickening	...
0	0	0	0	0	0	0	0	0	0	0	...
1	0	0	0	0	1	0	1	0	0	0	...
2	0	0	0	0	0	0	0	0	0	0	...
3	0	0	0	0	0	0	0	0	0	0	...
4	0	0	0	0	0	0	0	0	0	0	...

Infiltration_pred	Mass_pred	Nodule_pred	Atelectasis_pred	Pneumothorax_pred	Pleural_Thickening_pred	Pneumonia_pred	Fibrosis_pred	Edema_pred	Consolida
0.256020	0.266928	0.312440	0.460342	0.079453	0.271495	0.276861	0.398799	0.015867	
0.382199	0.176825	0.465807	0.489424	0.084595	0.377318	0.363582	0.638024	0.025948	
0.427727	0.115513	0.249030	0.035105	0.238761	0.167095	0.166389	0.262463	0.007758	
0.158596	0.259460	0.334870	0.266489	0.073371	0.229834	0.191281	0.344348	0.008559	
0.536762	0.198797	0.273110	0.186771	0.242122	0.309786	0.411771	0.244666	0.126930	

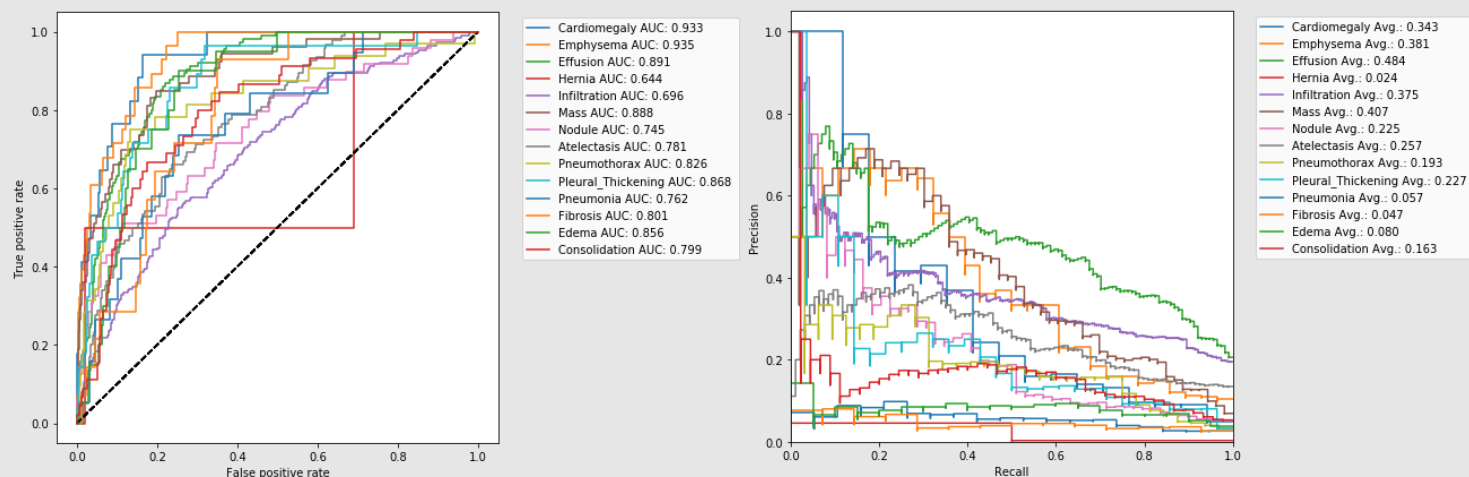
3. Metrics

- True Positives, False Positives, True Negatives, & False Negatives
- Accuracy
- Prevalence - *Proportion of positive examples.*
- Sensitivity & Specificity - *Outputs positive given that the case is actually positive. / Outputs negative given that the case is actually negative.*
- PPV & NPV – *Positive predictive value (PPV) / Negative predictive value (NPV).*
- ROC Curve

4. Confidence Intervals

5. F1 Score - harmonic mean of the precision and recall

	TP	TN	FP	FN	Accuracy	Prevalence	Sensitivity	Specificity	PPV	NPV	AUC	F1	Threshold
Cardiomegaly	16	814	169	1	0.83	0.017	0.941	0.828	0.086	0.999	0.933	0.158	0.5
Emphysema	20	869	103	8	0.889	0.028	0.714	0.894	0.163	0.991	0.935	0.265	0.5
Effusion	99	690	196	15	0.789	0.114	0.868	0.779	0.336	0.979	0.891	0.484	0.5
Hernia	1	743	255	1	0.744	0.002	0.5	0.744	0.004	0.999	0.644	0.008	0.5
Infiltration	114	543	265	78	0.657	0.192	0.594	0.672	0.301	0.874	0.696	0.399	0.5
Mass	40	789	158	13	0.829	0.053	0.755	0.833	0.202	0.984	0.888	0.319	0.5
Nodule	28	731	220	21	0.759	0.049	0.571	0.769	0.113	0.972	0.745	0.189	0.5
Atelectasis	64	657	249	30	0.721	0.094	0.681	0.725	0.204	0.956	0.781	0.314	0.5
Pneumothorax	24	785	183	8	0.809	0.032	0.75	0.811	0.116	0.99	0.826	0.201	0.5
Pleural_Thickening	24	713	259	4	0.737	0.028	0.857	0.734	0.085	0.994	0.868	0.154	0.5
Pneumonia	14	661	320	5	0.675	0.019	0.737	0.674	0.042	0.992	0.762	0.079	0.5
Fibrosis	10	725	261	4	0.735	0.014	0.714	0.735	0.037	0.995	0.801	0.07	0.5
Edema	15	767	213	5	0.782	0.02	0.75	0.783	0.066	0.994	0.856	0.121	0.5
Consolidation	36	658	297	9	0.694	0.045	0.8	0.689	0.108	0.987	0.799	0.19	0.5



6. Precision-Recall Curve (PRC)

7. Calibration

