

Channel Effect on Atelectasis Classification

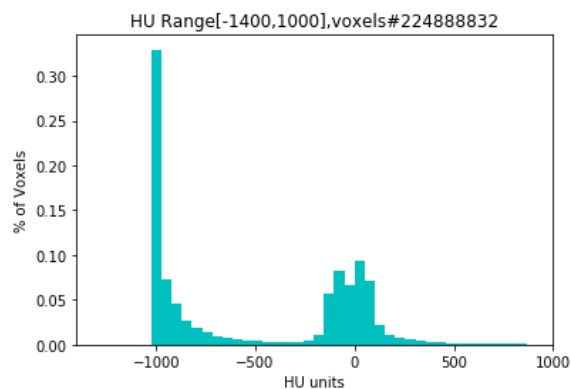
NIH Ranges

Model Description: Resnet50 -GlobalMaxPolling2D-Sigmoid (LAST layer Activation)

Cross-validation (CV): 4-Fold Cross Validation

Data: 1300 Atelectasis and 950 Normal Slices

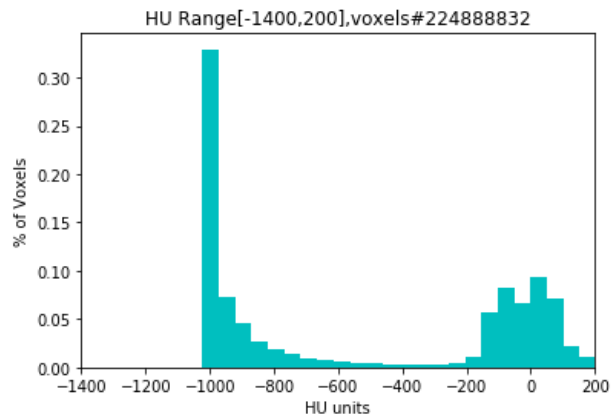
Over all Range



1. **Experiment # 1st Channel=NIH Normal Range [-1400,200] 2nd Channel=NIH Low Range [-1400, -950] 3rd Channel=NIH High Range [-160,240]**

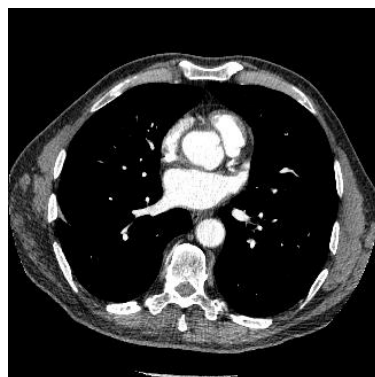
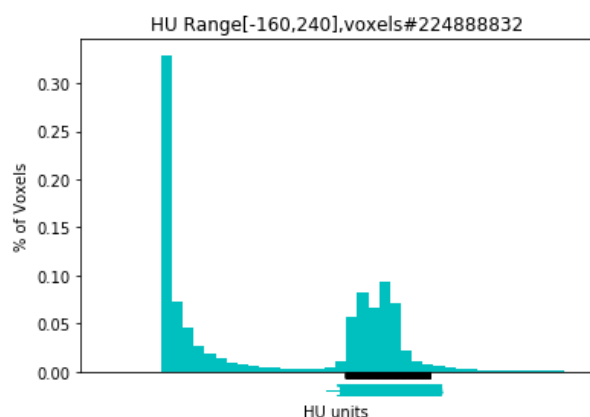
4-Fold CV	AUC	Accuracy	RSME Score
Average	0.805548	0.66044	0.563321
SD	0.021275	0.038882	0.051792

2. **Experiment with NIH Normal Range [-1400, 200], 97% voxels**



Fold #	AUC	Accuracy	RSME Score
Fold 1	0.762454850361197	0.7069271749967369	0.5072991764722222
Fold 2	0.7897412437823768	0.6696269981179314	0.5590785954383467
Fold 3	0.7814345991561181	0.681494661709592	0.5480257356461252
Fold 4	0.7712317136886102	0.6903914588626169	0.5412021690046384
Average	0.776216	0.68711	0.538901
SD	0.011894	0.015713	0.022319

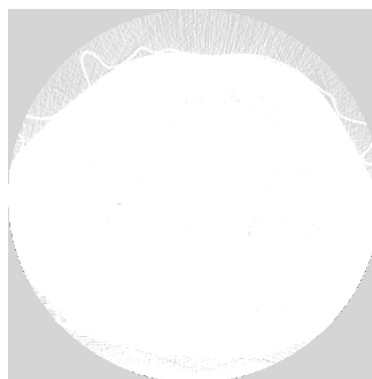
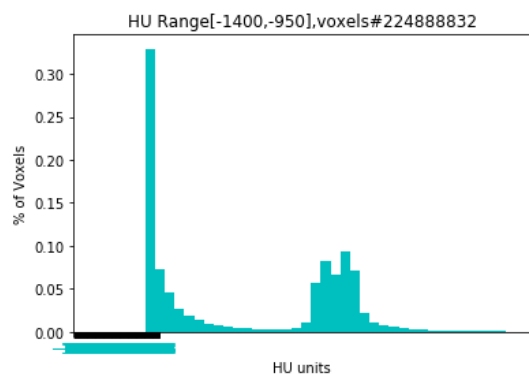
3. Experiment with NIH HIGH Range Only [-160, 240], Approximately 42% voxel



(Black line represents the HU window used in this image)

Fold #	AUC	Accuracy	RSME Score
Fold 1	0.6063402992776059	0.5737122564078648	0.6503127774802783
Fold 2	0.5944305559135074	0.5808170518803131	0.647353499469444
Fold 3	0.662499188575138	0.6138790035587188	0.6147872216192288
Fold 4	0.6716692789968652	0.6049822059814616	0.6251592054942041
Average	0.633735	0.593348	0.634403
SD	0.038994	0.019144	0.017234

4. Experiment with NIH HIGH Range Only [-1400, -950], Approximately 50% voxels



Fold #	AUC	Accuracy	RSME Score
Fold 1	0.7186210010319918	0.602131439356355	0.6222780743881798
Fold 2	0.6925530269838406	0.6074600358945227	0.6177281186939323
Fold 3	0.6170464135021096	0.594306049822064	0.6344515149914359
Fold 4	0.7010188087774295	0.6209964408569064	0.6102103161827216
Average	0.68231	0.606223	0.621167
SD	0.044843	0.011233	0.010159