

## Channel Effect on Atelectasis Classification

HU units Used in Experiments		
Name	Min Range	Max range
Base	-1000	240
Duke Complete Range	-1000	1000
Duke Low Range	-950	-250
Duke High Range	-250	250
NIH Normal Range	-1400	200
NIH Low Range	-1400	-950
NIH High Range	-160	240

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

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

**Data:** 1300 Atelectasis and 950 Normal Slices

Experiment with Base Range [-1000, 240]

Fold #	AUC	Accuracy	RSME Score
Fold 1	0.7222781217750258	0.5896980465517163	0.6366136346647475
Fold 2	0.71858328393591	0.5896980468163905	0.6321166747240156
Fold 3	0.7671859785783837	0.6814946625580567	0.5528869513679323
Fold 4	0.7257641065830721	0.6316725985011172	0.6024729569688372
<b>Average</b>	<b>0.733453</b>	<b>0.623141</b>	<b>0.606023</b>
<b>SD</b>	<b>0.022679</b>	<b>0.043646</b>	<b>0.038526</b>

**2.Experiment #:** Base Range [-1000,240]

NIH Normal Range [-1400,200]

NIH High Range [-160,240]

Fold #	AUC	Accuracy	RSME Score
Fold 1	0.7772639318885449	0.6696269981179314	0.5455444936131528
Fold 2	0.7986327671967217	0.6163410308306001	0.6103028393109133
Fold 3	0.6903992210321325	0.612099644234172	0.6202939869849055
Fold 4	0.8014890282131661	0.669039145483241	0.5849781739280315
<b>Average</b>	<b>0.766946237</b>	<b>0.641776705</b>	<b>0.590279873</b>
<b>SD</b>	<b>0.052164</b>	<b>0.031867</b>	<b>0.033322</b>

**3. Experiment #:** Duke Complete Range [-1000,1000]

Duke Low Range [-950, -250]

Duke High Range [-250,250]

Fold #	AUC	Accuracy	RSME Score
Fold 1	0.7547729618163055	0.6341030201734065	0.5833985387528596
Fold 2	0.7417334604778227	0.6163410305659258	0.6068458474437667
Fold 3	0.777935735150925	0.6334519581438384	0.5945324321226927
Fold 4	0.8041209508881922	0.6672597869011007	0.5596417968320995
<b>Average</b>	<b>0.769641</b>	<b>0.637789</b>	<b>0.586105</b>
<b>SD</b>	<b>0.027432</b>	<b>0.021299</b>	<b>0.020073</b>

#### 4. Experiment # NIH Normal Range [-1400,200]

NIH Low Range [-1400,-950]

NIH High Range [-160,240]

Fold #	AUC	Accuracy	RSME Score
Fold 1	0.8147058823529412	0.7122557717995788	0.48819101819508326
Fold 2	0.8097085126671993	0.6181172297648808	0.6066124379063443
Fold 3	0.7747224926971763	0.6530249118804932	0.582541126804481
Fold 4	0.8230538140020899	0.6583629897480757	0.5759391007087863
<b>Average</b>	<b>0.805548</b>	<b>0.66044</b>	<b>0.563321</b>
<b>SD</b>	<b>0.021275</b>	<b>0.038882</b>	<b>0.051792</b>

Observation: Using Multiple HU units Window Level Seems to be Better than Single HU window.