KNN Test Results

Trial	REAL	Augm Noise	Augm Color	Augm Mixed	Hybrid RN	Hybrid RC	Hybrid RM	Added HRN	Added HRC	Added HRM
1	0.6956	0.3913	0.4347	0.6086	0.8695	0.8260	0.6956	0.7391	0.7391	0.7826
2	0.6521	0.5652	0.5652	0.5652	0.8260	0.7826	0.8260	0.8478	0.7391	0.7391
3	0.9130	0.6086	0.5217	0.5652	0.8260	0.8260	0.7391	0.6956	0.7826	0.7391
4	0.7391	0.5652	0.5652	0.5652	0.9130	0.6086	0.7826	0.7173	0.8695	0.7826
5	0.6086	0.6521	0.6956	0.6521	0.8260	0.8260	0.7826	0.6956	0.8043	0.6739
6	0.5217	0.5217	0.5652	0.5217	0.7826	0.8260	0.7391	0.7391	0.8478	0.7608
7	0.6521	0.6086	0.6086	0.6521	0.9130	0.8695	0.9565	0.8043	0.7608	0.6739
8	0.7391	0.6956	0.6521	0.6521	0.7826	0.9130	0.9130	0.6956	0.7608	0.8913
9	0.6086	0.6086	0.6521	0.7391	0.8260	0.7826	0.7826	0.8043	0.6521	0.6739
10	0.5217	0.6521	0.6086	0.6956	0.6521	0.7391	0.7826	0.7391	0.7391	0.5217
KNN	**0.5217**	**0.6521**	**0.6521**	**0.6521**	**0.7826**	**0.8695**	**0.9565**	**0.7391**	**0.8478**	**0.7608**

CNN Test Results

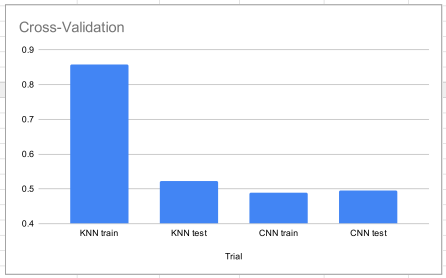
Trial	REAL	Augm Noise	Augm Color	Augm Mixed	Hybrid RN	Hybrid RC	Hybrid RM	Added HRN	Added HRC	Added HRM
1	0.462	0.493	0.525	0.512	0.506	0.5	0.481	0.45	0.5	0.487
2	0.45	0.493	0.462	0.5	0.518	0.537	0.5	0.496	0.512	0.509
3	0.475	0.456	0.537	0.55	0.456	0.45	0.525	0.49	0.562	0.531
4	0.487	0.431	0.5	0.475	0.481	0.5	0.5	0.503	0.631	0.531
5	0.487	0.506	0.537	0.475	0.481	0.5	0.5	0.503	0.628	0.468
6	0.52	0.481	0.462	0.525	0.481	0.437	0.5	0.503	0.556	0.512
7	0.55	0.506	0.543	0.525	0.481	0.5	0.5	0.503	0.668	0.553
8	0.475	0.518	0.506	0.525	0.518	0.5	0.5	0.515	0.662	0.493
9	0.537	0.481	0.462	0.525	0.512	0.5	0.5	0.503	0.706	0.543
10	0.518	0.518	0.543	0.525	0.506	0.5	0.5	0.534	0.687	0.518
CNN	**0.4961**	**0.4883**	**0.5077**	**0.5137**	**0.494**	**0.4924**	**0.5006**	**0.5**	**0.6112**	**0.5145**

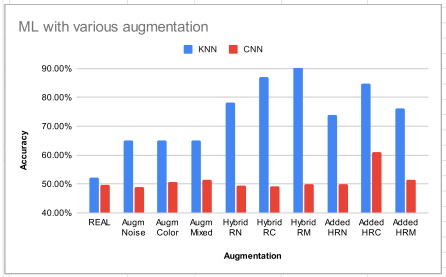
Groups

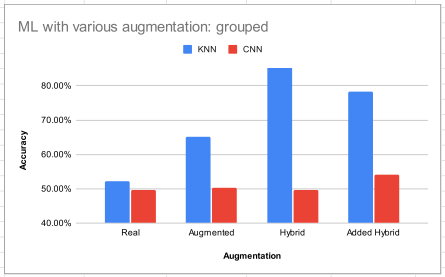
	KNN	CNN
Real	0.5217	0.4961
Augmented	0.6521	0.5032333333
Hybrid	0.8695333333	0.4956666667
Added Hybrid	0.7825666667	0.5419

Cross-validation real images

Trial	KNN train	KNN test	CNN train	CNN test
1	0.84	0.6956	0.456	0.462
2	0.843	0.6521	0.481	0.45
3	0.881	0.9130	0.481	0.475
4	0.85	0.7391	0.518	0.487
5	0.881	0.6086	0.493	0.487
6	0.85	0.5217	0.568	0.52
7	0.868	0.6521	0.518	0.55
8	0.862	0.7391	0.456	0.475
9	0.837	0.6086	0.406	0.537
10	0.862	0.5217	0.518	0.518
Averages	**0.8574**	**0.5217**	**0.4895**	**0.4961**







KNN		TRAIN ACC	TEST ACC										
real:	train-acc: 0.8260869565217391	tst: 0.8260	0.5217	0.8260	0.8696	0.75	0.7034	0.9565	0.9565	0.9239	0.9347	0.8696	
noise:	train-acc: 0.8586956521739131	tst: 0.8586	0.6521	0.5217	0.6521	0.6086	0.6956	0.6521	0.7391	0.7826	0.7391	0.7391	0.5217
color:	train-acc: 0.75	test-acc: 0.6086956	0.75	0.6086									
mixed:	train-acc: 0.7934782608695652	t: 0.7934	0.6956										
hrn:	train-acc: 0.9565439560439561	tst: 0.9560	0.6521										
hrc:	train-acc: 0.9560439560439561	tst: 0.9560	0.7391										
hrm:	train-acc: 0.9230769230769231	ts: 0.9230	0.7826										
ahrn:	train-acc: 0.9239130434782609	ts: 0.9239	0.7391										
ahrc:	train-acc: 0.9347826086956522	ts: 0.9347	0.7391										
ahrm:	train-acc: 0.8858695652173914	ts: 0.8858	0.5217										

CNN	
(32, 64, 64, 3) (62,) (23, 64, 64, 3) (23,)	
Epoch 1/10	REAL ACC
1/1 [==============================] -	0.532
Epoch 2/10	#VALUE!
1/1 [==============================] -	0.467
Epoch 3/10	#VALUE!
1/1 [==============================] -	0.532
Epoch 4/10	#VALUE!
1/1 [==============================] -	0.532
Epoch 5/10	#VALUE!
1/1 [==============================] -	0.467
Epoch 6/10	#VALUE!
1/1 [==============================] -	0.467
Epoch 7/10	#VALUE!
1/1 [==============================] -	0.467

Epoch 8/10	#VALUE!
1/1 [==============================] -	0.467
Epoch 9/10	#VALUE!
1/1 [==============================] -	0.467
Epoch 10/10	#VALUE!
1/1 [==============================] -	0.532
3/3 [==============================] -	0.532
1/1 [==============================] -	0.391
(92, 64, 64, 3) (92,) (23, 64, 64, 3) (23,)	#VALUE!
Epoch 1/10	#VALUE!
1/1 [==============================] -	0.500
Epoch 2/10	#VALUE!
1/1 [==============================] -	0.500
Epoch 3/10	#VALUE!
1/1 [==============================] -	0.500
Epoch 4/10	#VALUE!
1/1 [==============================] -	0.500
Epoch 5/10	#VALUE!
1/1 [==============================] -	0.510
Epoch 6/10	#VALUE!
1/1 [==============================] -	0.500
Epoch 7/10	#VALUE!
1/1 [==============================] -	0.500
Epoch 8/10	#VALUE!
1/1 [==============================] -	0.500
Epoch 9/10	#VALUE!
1/1 [==============================] -	0.500
Epoch 10/10	#VALUE!
1/1 [==============================] -	0.500
3/3 [==============================] -	0.500
1/1 [==============================] -	0.478
(92, 64, 64, 3) (92,) (23, 64, 64, 3) (23,)	#VALUE!
Epoch 1/10	#VALUE!
1/1 [==============================] -	0.500
Epoch 2/10	#VALUE!
1/1 [==============================] -	0.521
Epoch 3/10	#VALUE!
1/1 [==============================] -	0.478
Epoch 4/10	#VALUE!
1/1 [==============================] -	0.521
Epoch 5/10	#VALUE!
1/1 [==============================] -	0.478
Epoch 6/10	#VALUE!
1/1 [==============================] -	0.478
Epoch 7/10	#VALUE!
1/1 [==============================] -	0.478
Epoch 8/10	#VALUE!
1/1 [==============================] -	0.521
Epoch 9/10	#VALUE!
1/1 [==============================] -	0.521
Epoch 10/10	#VALUE!
1/1 [==============================] -	0.521
3/3 [==============================] -	0.521
1/1 [==============================] -	0.434
(92, 64, 64, 3) (92,) (23, 64, 64, 3) (23,)	#VALUE!
Epoch 1/10	#VALUE!
1/1 [==============================] -	0.500
Epoch 2/10	#VALUE!
1/1 [==============================] -	0.510
Epoch 3/10	#VALUE!
1/1 [==============================] -	0.489
Epoch 4/10	#VALUE!
1/1 [==============================] -	0.510
Epoch 5/10	#VALUE!
1/1 [==============================] -	0.489
Epoch 6/10	#VALUE!
1/1 [==============================] -	0.510
Epoch 7/10	#VALUE!
1/1 [==============================] -	0.489
Epoch 8/10	#VALUE!
1/1 [==============================] -	0.510
Epoch 9/10	#VALUE!
1/1 [==============================] -	0.510
Epoch 10/10	#VALUE!
1/1 [==============================] -	0.489
3/3 [==============================] -	0.619
1/1 [==============================] -	0.608
(91, 64, 64, 3) (91,) (23, 64, 64, 3) (23,)	#VALUE!
Epoch 1/10	#VALUE!
1/1 [==============================] -	0.527
Epoch 2/10	#VALUE!
1/1 [==============================] -	0.527
Epoch 3/10	#VALUE!
1/1 [==============================] -	0.472
Epoch 4/10	#VALUE!
1/1 [==============================] -	0.472
Epoch 5/10	#VALUE!
1/1 [==============================] -	0.527
Epoch 6/10	#VALUE!
1/1 [==============================] -	0.472
Epoch 7/10	#VALUE!
1/1 [==============================] -	0.527
Epoch 8/10	#VALUE!
1/1 [==============================] -	0.527
Epoch 9/10	#VALUE!
1/1 [==============================] -	0.527
Epoch 10/10	#VALUE!
1/1 [==============================] -	0.527
3/3 [==============================] -	0.527
1/1 [==============================] -	0.434
(91, 64, 64, 3) (91,) (23, 64, 64, 3) (23,)	#VALUE!
Epoch 1/10	#VALUE!
1/1 [==============================] -	0.461
Epoch 2/10	#VALUE!
1/1 [==============================] -	0.538
Epoch 3/10	#VALUE!
1/1 [==============================] -	0.461
Epoch 4/10	#VALUE!
1/1 [==============================] -	0.538
Epoch 5/10	#VALUE!
1/1 [==============================] -	0.538
Epoch 6/10	#VALUE!
1/1 [==============================] -	0.538
Epoch 7/10	#VALUE!
1/1 [==============================] -	0.461
Epoch 8/10	#VALUE!
1/1 [==============================] -	0.461
Epoch 9/10	#VALUE!
1/1 [==============================] -	0.538
Epoch 10/10	#VALUE!
1/1 [==============================] -	0.538
3/3 [==============================] -	0.571
1/1 [==============================] -	0.565
(91, 64, 64, 3) (91,) (23, 64, 64, 3) (23,)	#VALUE!
Epoch 1/10	#VALUE!
1/1 [==============================] -	0.461
Epoch 2/10	#VALUE!
1/1 [==============================] -	0.538
Epoch 3/10	#VALUE!
1/1 [==============================] -	0.538
Epoch 4/10	#VALUE!
1/1 [==============================] -	0.461
Epoch 5/10	#VALUE!
1/1 [==============================] -	0.461
Epoch 6/10	#VALUE!
1/1 [==============================] -	0.538
Epoch 7/10	#VALUE!

1/1 [==============================] -	0.538
Epoch 8/10	#VALUE!
1/1 [==============================] -	0.538
Epoch 9/10	#VALUE!
1/1 [==============================] -	0.549
Epoch 10/10	#VALUE!
1/1 [==============================] -	0.538
3/3 [==============================] -	0.538
1/1 [==============================] -	0.391
(184, 64, 64, 3) (184,) (46, 64, 64, 3) (46,)	#VALUE!
Epoch 1/10	#VALUE!
2/2 [==============================] -	0.494
Epoch 2/10	#VALUE!
2/2 [==============================] -	0.505
Epoch 3/10	#VALUE!
2/2 [==============================] -	0.559
Epoch 4/10	#VALUE!
2/2 [==============================] -	0.505
Epoch 5/10	#VALUE!
2/2 [==============================] -	0.505
Epoch 6/10	#VALUE!
2/2 [==============================] -	0.505
Epoch 7/10	#VALUE!
2/2 [==============================] -	0.505
Epoch 8/10	#VALUE!
2/2 [==============================] -	0.505
Epoch 9/10	#VALUE!
2/2 [==============================] -	0.505
Epoch 10/10	#VALUE!
2/2 [==============================] -	0.505
6/6 [==============================] -	0.505
2/2 [==============================] -	0.456
(184, 64, 64, 3) (184,) (46, 64, 64, 3) (46,)	#VALUE!
Epoch 1/10	#VALUE!
2/2 [==============================] -	0.489
Epoch 2/10	#VALUE!
2/2 [==============================] -	0.505
Epoch 3/10	#VALUE!
2/2 [==============================] -	0.505
Epoch 4/10	#VALUE!
2/2 [==============================] -	0.494
Epoch 5/10	#VALUE!
2/2 [==============================] -	0.423
Epoch 6/10	#VALUE!
2/2 [==============================] -	0.483
Epoch 7/10	#VALUE!
2/2 [==============================] -	0.505
Epoch 8/10	#VALUE!
2/2 [==============================] -	0.527
Epoch 9/10	#VALUE!
2/2 [==============================] -	0.494
Epoch 10/10	#VALUE!
2/2 [==============================] -	0.494
6/6 [==============================] -	0.494
2/2 [==============================] -	0.543
(184, 64, 64, 3) (184,) (46, 64, 64, 3) (46,)	#VALUE!
Epoch 1/10	#VALUE!
2/2 [==============================] -	0.429
Epoch 2/10	#VALUE!
2/2 [==============================] -	0.489
Epoch 3/10	#VALUE!
2/2 [==============================] -	0.510
Epoch 4/10	#VALUE!
2/2 [==============================] -	0.510
Epoch 5/10	#VALUE!
2/2 [==============================] -	0.565
Epoch 6/10	#VALUE!
2/2 [==============================] -	0.489
Epoch 7/10	#VALUE!
2/2 [==============================] -	0.483
Epoch 8/10	#VALUE!
2/2 [==============================] -	0.500
Epoch 9/10	#VALUE!
2/2 [==============================] -	0.489
Epoch 10/10	#VALUE!
2/2 [==============================] -	0.489
6/6 [==============================] -	0.489
2/2 [==============================] -	0.565

Results...	TRAIN ACC	TEST ACC										
real: train-loss 0.6909132599830627 trai	0.5326	0.3913	0.5326	0.5	0.5217	0.6195	0.5274	0.5714	0.5384	0.5054	0.4945	0.4891
noise: train-loss 0.7038693428039551 tra	0.5	0.4782	0.3913	0.4782	0.4347	0.6086	0.4347	0.5652	0.3913	0.4565	0.5434	0.5652
color: train-loss 0.6914979815483093 tra	0.5217	0.4347										
mixed: train-loss 0.6871914863586426 tr	0.6195	0.6086										
hrn: train-loss 0.6864696145057678 tra	0.5274	0.4347										
hrc: train-loss 0.6921368837356567 trai	0.5714	0.5652										
hrm: train-loss 0.6985617876052856 tra	0.5384	0.3913										
ahrn: train-loss 0.6943566203117371 tra	0.5054	0.4565										
ahrc: train-loss 0.6939188838005066 tra	0.4945	0.5434										
ahrm: train-loss 0.6966708898544312 tr	0.4891	0.5652										