

Supplementary

DuplicateNet: A Large-Scale Duplicate Image Detection Dataset and Baseline Evaluations

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I. BASELINE EXPERIMENTAL RESULTS

Additional results of the *Intra Set* and *Inter Set* experiments are summarized in the following subsections.

A. *Intra Set Experiments*

Tables I and IV shows the results of the intra set experiments on Set 1 and Set 4, respectively. Results at recall 1 corresponding to all the sets are shown in the main paper. Here, in Tables I, II, III, and IV, we have shown the results on these sets at recall 5 and 10. For better interpretability we have also included the results at recall 1 on these sets.

B. *Inter Set Experiments*

Tables V, VI, and VII show the results of the inter set experiment on Sets 2, 3, and 4, respectively, when the network is trained on Set 1. Similarly, results on Sets 1, 3, and 4 are shown in Tables VIII, IX, and X, respectively, when the network is trained on Set 2. In these experiments, the network is trained on handcrafted transformed images and evaluated on both handcrafted and learning based transformed images. Next, Tables XI, XII, and XIII summarizes the results on Sets 1, 2, and 4, respectively, using the network trained on Set 3. Finally, the results on Sets 1, 2, and 3 are reported in Tables XIV, XV, and XVI, respectively, when the network is trained on Set 4. Here, the network is trained on GAN generated transformed images and evaluated on both handcrafted and learning based transformed images.

TABLE I
RESULTS FOR THE INTRA SET EXPERIMENT. THE NETWORK IS TRAINED AND EVALUATED ON SET 1. THE ACCURACY IS COMPUTED FOR THE TOP 1, 5,
AND 10 CLOSEST MATCHES.

SET 1	Recall @1			Recall @5			Recall @10		
<i>Transformations</i>	Triplet Loss	Siamese	Spatial Histogram	Triplet Loss	Siamese	Spatial Histogram	Triplet Loss	Siamese	Spatial Histogram
<i>Flipping</i>	95.11%	59.54%	29.26%	98.87%	70.03%	32.61%	99.50%	74.57%	34.52%
<i>Scaling</i>	95.72%	97.91%	61.36%	98.73%	99.32%	71.68%	99.20%	99.59%	74.89%
<i>Translation</i>	87.12%	95.33%	85.06%	95.58%	98.67%	91.88%	97.43%	99.18%	93.60%
<i>Rotation</i>	96.41%	91.70%	35.28%	99.27%	97.92%	50.19%	99.64%	98.89%	56.16%
<i>Salt & Pepper Noise</i>	98.62%	99.80%	88.60%	99.64%	99.99%	93.64%	99.82%	100.00%	94.95%
<i>Gamma Correction</i>	67.47%	61.99%	0.12%	80.86%	75.91%	0.38%	85.55%	80.78%	0.55%
<i>Blurring</i>	97.81%	99.72%	89.92%	99.14%	99.91%	94.21%	99.41%	99.96%	95.33%
<i>Shearing</i>	99.90%	99.94%	86.75%	100.00%	100.00%	92.36%	100.00%	100.00%	93.91%
<i>Perspective Transform</i>	94.76%	97.73%	77.81%	98.79%	99.25%	86.62%	99.44%	99.60%	89.10%
<i>Warping</i>	99.87%	99.94%	94.10%	99.99%	100.00%	96.93%	100.00%	100.00%	97.58%
<i>Filters</i>	35.22%	50.73%	19.67%	49.60%	64.13%	31.76%	55.84%	69.05%	36.97%
Overall	88.00%	86.76%	60.72%	92.77%	91.37%	67.48%	94.17%	92.88%	69.78%

TABLE II
RESULTS FOR THE INTRA SET EXPERIMENT. THE NETWORK IS TRAINED AND EVALUATED ON SET 2. THE ACCURACY IS COMPUTED FOR THE TOP 1, 5,
AND 10 CLOSEST MATCHES.

SET 2	Recall @1			Recall @5			Recall @10		
<i>Transformations</i>	Triplet Loss	Siamese	Spatial Histogram	Triplet Loss	Siamese	Spatial Histogram	Triplet Loss	Siamese	Spatial Histogram
<i>Flipping</i>	96.04%	61.12%	33.86%	99.53%	72.61%	40.02%	99.78%	77.41%	43.68%
<i>Scaling</i>	99.60%	94.43%	83.66%	99.98%	98.16%	89.63%	99.98%	98.78%	91.32%
<i>Translation</i>	99.85%	98.11%	96.84%	100.00%	99.65%	98.86%	100.00%	99.83%	99.20%
<i>Rotation</i>	98.83%	96.54%	71.62%	99.88%	99.73%	83.66%	99.95%	99.90%	87.39%
<i>Salt & Pepper Noise</i>	99.88%	93.41%	92.29%	100.00%	97.96%	96.54%	100.00%	99.10%	97.74%
<i>Gamma Correction</i>	93.43%	9.33%	0.67%	98.03%	20.20%	1.39%	98.86%	28.31%	2.24%
<i>Blurring</i>	99.25%	96.44%	94.63%	99.80%	98.63%	97.16%	99.90%	99.20%	97.79%
<i>Shearing</i>	99.85%	98.31%	87.69%	100.00%	99.83%	93.76%	100.00%	99.85%	95.32%
<i>Perspective Transform</i>	98.73%	90.50%	86.77%	99.98%	97.26%	92.99%	100.00%	98.73%	94.43%
<i>Warping</i>	100.00%	100.00%	98.76%	100.00%	100.00%	99.65%	100.00%	100.00%	99.78%
<i>Filters</i>	92.81%	22.01%	33.48%	96.84%	36.14%	47.61%	97.96%	43.86%	53.51%
Overall	98.03%	78.20%	70.93%	99.46%	83.65%	76.48%	99.67%	85.91%	78.40%

TABLE III
RESULTS FOR THE INTRA SET EXPERIMENT. THE NETWORK IS TRAINED AND EVALUATED ON SET 3. THE ACCURACY IS COMPUTED FOR THE TOP 1, 5,
AND 10 CLOSEST MATCHES.

SET 3	Recall @1			Recall @5			Recall @10		
<i>Transformations</i>	Triplet Loss	Siamese	Spatial Histogram	Triplet Loss	Siamese	Spatial Histogram	Triplet Loss	Siamese	Spatial Histogram
<i>Cycle GAN</i>									
<i>Van-gogh</i>	99.60%	94.03	5.07%	100.00%	97.61	10.75%	100.00%	98.81	14.03%
<i>Monet</i>	100.00%	97.61	3.78%	100.00%	99.00	8.26%	100.00%	99.40	11.14%
<i>Ukiyoe</i>	98.21%	80.10	0.70%	99.80%	90.25	2.69%	99.90%	94.13	3.98%
<i>Cezanna</i>	99.80%	97.21	4.08%	100.00%	98.71	8.46%	100.00%	99.10	11.74%
<i>Cartoon GAN</i>									
<i>Shinkai</i>	98.71%	92.04	7.76%	99.60%	96.32	15.32%	99.70%	97.31	18.81%
<i>Hayao</i>	98.41%	91.24	6.27%	99.50%	96.82	11.34%	99.70%	98.11	16.12%
<i>Hosoda</i>	99.00%	90.05	3.38%	99.60%	95.92	7.06%	99.80%	96.82	8.96%
<i>Paprika</i>	99.60%	94.23	8.56%	100.00%	97.21	14.93%	100.00%	98.01	18.51%
Overall	99.17%	92.95	4.94%	99.81%	96.87	9.88%	99.89%	97.97	12.92%

TABLE IV
RESULTS FOR THE INTRA SET EXPERIMENT. THE NETWORK IS TRAINED AND EVALUATED ON SET 4. THE ACCURACY IS COMPUTED FOR THE TOP 1, 5, AND 10 CLOSEST MATCHES.

SET 4	Recall @1			Recall @5			Recall @10		
<i>Transformations</i>	Triplet Loss	Siamese	Spatial Histogram	Triplet Loss	Siamese	Spatial Histogram	Triplet Loss	Siamese	Spatial Histogram
<i>Black Hair</i>	96.00%	86.00%	29.00%	99.00%	92.00%	51.00%	99.00%	9458.00%.00%	61.00%
<i>Blonde Hair</i>	96.00%	58.00%	26.00%	99.00%	70.00%	41.00%	99.00%	74.00%	56.00%
<i>Brown Hair</i>	68.00%	51.00%	27.00%	77.00%	61.00%	40.00%	86.00%	66.00%	49.00%
<i>Gender</i>	98.00%	80.00%	33.00%	99.00%	88.00%	63.00%	100.00%	92.00%	71.00%
<i>Aged</i>	95.00%	83.00%	46.00%	98.00%	89.00%	61.00%	99.00%	89.00%	70.00%
Overall	90.60%	76.29%	32.20%	94.40%	83.31%	51.20%	96.60%	85.81%	61.40%

TABLE V
RESULTS FOR THE INTER SET EXPERIMENT. THE NETWORK IS TRAINED ON SET 1 AND EVALUATED ON SET 2. THE ACCURACY IS COMPUTED FOR THE TOP 1, 5, AND 10 CLOSEST MATCHES.

SET 2	Recall @1			Recall @5			Recall @10		
<i>Transformations</i>	Triplet Loss	Siamese	Spatial Histogram	Triplet Loss	Siamese	Spatial Histogram	Triplet Loss	Siamese	Spatial Histogram
<i>Flipping</i>	98.98%	72.84%	33.86%	99.93%	84.78%	40.02%	100.00%	89.03%	43.68%
<i>Scaling</i>	98.81%	99.38%	83.66%	99.80%	99.95%	89.63%	99.93%	100.00%	91.32%
<i>Translation</i>	95.90%	98.83%	96.84%	99.48%	99.83%	98.86%	99.88%	99.88%	99.20%
<i>Rotation</i>	99.20%	97.76%	71.62%	99.93%	99.88%	83.66%	100.00%	99.98%	87.39%
<i>Salt & Pepper Noise</i>	99.85%	99.95%	92.29%	99.98%	100.00%	96.54%	100.00%	100.00%	97.74%
<i>Gamma Correction</i>	83.63%	77.21%	0.67%	94.03%	89.55%	1.39%	96.92%	93.78%	2.24%
<i>Blurring</i>	98.68%	99.88%	94.63%	99.68%	99.98%	97.16%	99.90%	100.00%	97.79%
<i>Shearing</i>	100.00%	100.00%	87.69%	100.00%	100.00%	93.76%	100.00%	100.00%	95.32%
<i>Perspective Transform</i>	98.76%	99.10%	86.77%	100.00%	99.80%	92.99%	100.00%	100.00%	94.43%
<i>Warping</i>	100.00%	99.93%	98.76%	100.00%	100.00%	99.65%	100.00%	100.00%	99.78%
<i>Filters</i>	54.55%	66.19%	33.48%	71.62%	79.38%	47.61%	78.81%	84.23%	53.51%
Overall	93.49%	91.92%	70.93%	96.77%	95.74%	76.48%	97.77%	96.99%	78.40%

TABLE VI
RESULTS FOR THE INTER SET EXPERIMENT. THE NETWORK IS TRAINED ON SET 1 AND EVALUATED ON SET 3. THE ACCURACY IS COMPUTED FOR THE TOP 1, 5, AND 10 CLOSEST MATCHES.

SET 3	Recall @1			Recall @5			Recall @10		
<i>Transformations</i>	Triplet Loss	Siamese	Spatial Histogram	Triplet Loss	Siamese	Spatial Histogram	Triplet Loss	Siamese	Spatial Histogram
Cycle GAN									
<i>Van-gogh</i>	3.58%	8.96%	5.07%	9.55%	17.71%	10.75%	13.13%	22.39%	14.03%
<i>Monet</i>	5.07%	9.05%	3.78%	10.75%	17.31%	8.26%	13.73%	22.69%	11.14%
<i>Ukiyoe</i>	0.20%	1.09%	0.70%	0.80%	2.19%	2.69%	1.69%	3.28%	3.98%
<i>Cezanna</i>	2.49%	6.77%	4.08%	7.06%	14.03%	8.46%	10.65%	18.51%	11.74%
Cartoon GAN									
<i>Shinkai</i>	4.08%	12.84%	7.76%	10.15%	22.19%	15.32%	13.83%	27.46%	18.81%
<i>Hayao</i>	8.06%	22.69%	6.27%	17.21%	33.73%	11.34%	22.19%	40.10%	16.12%
<i>Hosoda</i>	3.38%	10.85%	3.38%	8.36%	20.10%	7.06%	12.64%	24.98%	8.96%
<i>Paprika</i>	6.97%	16.72%	8.56%	14.73%	27.46%	14.93%	20.20%	33.63%	18.51%
Overall	14.86%	37.23%	4.94%	44.91%	28.30%	9.88%	23.11%	32.55%	12.92%

TABLE VII
RESULTS FOR THE INTER SET EXPERIMENT. THE NETWORK IS TRAINED ON SET 1 AND EVALUATED ON SET 4. THE ACCURACY IS COMPUTED FOR THE TOP 1, 5, AND 10 CLOSEST MATCHES.

SET 4	Recall @1			Recall @5			Recall @10		
<i>Transformations</i>	Triplet Loss	Siamese	Spatial Histogram	Triplet Loss	Siamese	Spatial Histogram	Triplet Loss	Siamese	Spatial Histogram
<i>Black Hair</i>	18.00%	29.00%	29.00%	43.00%	51.00%	51.00%	53.00%	64.00%	61.00%
<i>Blonde Hair</i>	10.00%	20.00%	26.00%	32.00%	47.00%	41.00%	48.00%	56.00%	56.00%
<i>Brown Hair</i>	11.00%	15.00%	27.00%	28.00%	33.00%	40.00%	39.00%	39.00%	49.00%
<i>Gender</i>	21.00%	31.00%	33.00%	31.00%	47.00%	63.00%	44.00%	58.00%	71.00%
<i>Age</i>	23.00%	29.00%	46.00%	36.00%	56.00%	61.00%	51.00%	63.00%	70.00%
Overall	30.38%	37.23%	32.20%	44.91%	55.59%	51.20%	55.76%	63.27%	61.40%

TABLE VIII
RESULTS FOR THE INTER SET EXPERIMENT. THE NETWORK IS TRAINED ON SET 2 AND EVALUATED ON SET 1. THE ACCURACY IS COMPUTED FOR THE TOP 1, 5, AND 10 CLOSEST MATCHES.

SET 1	Recall @1			Recall @5			Recall @10		
<i>Transformations</i>	Triplet Loss	Siamese	Spatial Histogram	Triplet Loss	Siamese	Spatial Histogram	Triplet Loss	Siamese	Spatial Histogram
<i>Flipping</i>	90.52%	48.73%	29.26%	96.57%	58.19%	32.61%	97.93%	62.43%	34.52%
<i>Scaling</i>	91.24%	76.70%	61.36%	96.40%	87.09%	71.68%	97.69%	89.95%	74.89%
<i>Translation</i>	79.27%	72.25%	85.06%	89.05%	87.41%	91.88%	92.06%	91.47%	93.60%
<i>Rotation</i>	77.74%	68.59%	35.28%	88.51%	84.42%	50.19%	91.73%	89.56%	56.16%
<i>Salt & Pepper Noise</i>	99.61%	89.65%	88.60%	99.94%	94.31%	93.64%	99.97%	95.85%	94.95%
<i>Gamma Correction</i>	86.61%	3.72%	0.12%	93.19%	8.00%	0.38%	95.17%	10.99%	0.55%
<i>Blurring</i>	98.34%	90.97%	89.92%	99.07%	95.53%	94.21%	99.33%	96.79%	95.33%
<i>Shearing</i>	99.89%	99.06%	86.75%	100.00%	99.82%	92.36%	100.00%	99.92%	93.91%
<i>Perspective Transform</i>	88.74%	68.99%	77.81%	95.59%	81.93%	86.62%	97.42%	86.44%	89.10%
<i>Warping</i>	99.91%	99.31%	94.10%	99.99%	99.90%	96.93%	100.00%	99.95%	97.58%
<i>Filters</i>	87.63%	11.65%	19.67%	92.74%	19.79%	31.76%	94.24%	24.26%	36.97%
Overall	90.86%	66.43%	60.72%	95.55%	74.22%	67.48%	96.87%	77.05%	69.78%

TABLE IX
RESULTS FOR THE INTER SET EXPERIMENT. THE NETWORK IS TRAINED ON SET 2 AND EVALUATED ON SET 3. THE ACCURACY IS COMPUTED FOR THE TOP 1, 5, AND 10 CLOSEST MATCHES.

SET 3	Recall @1			Recall @5			Recall @10		
<i>Transformations</i>	Triplet Loss	Siamese	Spatial Histogram	Triplet Loss	Siamese	Spatial Histogram	Triplet Loss	Siamese	Spatial Histogram
Cycle GAN									
<i>Van-gogh</i>	42.69%	9.95%	5.07%	55.82%	19.70%	10.75%	60.30%	25.87%	14.03%
<i>Monet</i>	32.74%	6.07%	3.78%	46.57%	10.75%	8.26%	52.04%	14.33%	11.14%
<i>Ukiyoe</i>	12.94%	0.10%	0.70%	23.78%	0.40%	2.69%	29.95%	0.70%	3.98%
<i>Cezanna</i>	40.60%	8.26%	4.08%	54.93%	15.72%	8.46%	61.49%	21.09%	11.74%
Cartoon GAN									
<i>Shinkai</i>	41.59%	8.56%	7.76%	54.93%	14.23%	15.32%	61.79%	18.71%	18.81%
<i>Hayao</i>	42.49%	9.85%	6.27%	52.04%	19.30%	11.34%	56.92%	24.68%	16.12%
<i>Hosoda</i>	37.61%	6.07%	3.38%	50.15%	11.34%	7.06%	56.62%	13.53%	8.96%
<i>Paprika</i>	37.91%	7.56%	8.56%	50.75%	15.12%	14.93%	56.12%	18.51%	18.51%
Overall	36.06%	17.37%	4.94%	48.62%	22.94%	9.88%	54.40%	26.37%	12.92%

TABLE X
RESULTS FOR THE INTER SET EXPERIMENT. THE NETWORK IS TRAINED ON SET 2 AND EVALUATED ON SET 4. THE ACCURACY IS COMPUTED FOR THE TOP 1, 5, AND 10 CLOSEST MATCHES.

SET 4	Recall @1			Recall @5			Recall @10		
<i>Transformations</i>	Triplet Loss	Siamese	Spatial Histogram	Triplet Loss	Siamese	Spatial Histogram	Triplet Loss	Siamese	Spatial Histogram
<i>Black Hair</i>	28.00%	39.00%	29.00%	49.00%	57.00%	51.00%	63.00%	71.00%	61.00%
<i>Blonde Hair</i>	17.00%	24.00%	26.00%	42.00%	39.00%	41.00%	53.00%	51.00%	56.00%
<i>Brown Hair</i>	15.00%	11.00%	27.00%	29.00%	25.00%	40.00%	42.00%	33.00%	49.00%
<i>Gender</i>	28.00%	35.00%	33.00%	53.00%	58.00%	63.00%	59.00%	69.00%	71.00%
<i>Aged</i>	31.00%	26.00%	46.00%	54.00%	49.00%	61.00%	67.00%	62.00%	70.00%
Overall	23.80%	39.07%	32.20%	45.40%	54.59%	51.20%	83.52%	64.27%	61.40%

TABLE XI
RESULTS FOR THE INTER SET EXPERIMENT. THE NETWORK IS TRAINED ON SET 3 AND EVALUATED ON SET 1. THE ACCURACY IS COMPUTED FOR THE TOP 1, 5, AND 10 CLOSEST MATCHES.

SET 1	Recall @1			Recall @5			Recall @10		
<i>Transformations</i>	Triplet Loss	Siamese	Spatial Histogram	Triplet Loss	Siamese	Spatial Histogram	Triplet Loss	Siamese	Spatial Histogram
<i>Flipping</i>	27.35%	29.28%	29.26%	29.19%	32.11%	32.61%	30.43%	33.49%	34.52%
<i>Scaling</i>	72.94%	66.59%	61.36%	84.02%	74.05%	71.68%	88.23%	76.73%	74.89%
<i>Translation</i>	29.85%	38.92%	85.06%	47.15%	53.76%	91.88%	54.72%	59.63%	93.60%
<i>Rotation</i>	15.45%	23.03%	35.28%	28.61%	35.41%	50.19%	34.57%	40.68%	56.16%
<i>Salt & Pepper Noise</i>	99.71%	98.71%	88.60%	99.94%	99.43%	93.64%	99.96%	99.57%	94.95%
<i>Gamma Correction</i>	92.71%	33.59%	0.12%	95.83%	43.70%	0.38%	96.68%	48.15%	0.55%
<i>Blurring</i>	99.95%	99.39%	89.92%	100.00%	99.83%	94.21%	100.00%	99.89%	95.33%
<i>Shearing</i>	99.92%	99.24%	86.75%	100.00%	99.91%	92.36%	100.00%	99.96%	93.91%
<i>Perspective Transform</i>	51.73%	53.33%	77.81%	55.16%	57.65%	86.62%	57.65%	59.94%	89.10%
<i>Warping</i>	88.83%	89.17%	94.10%	97.17%	96.17%	96.93%	98.68%	97.59%	97.58%
<i>Filters</i>	99.80%	91.35%	19.67%	99.93%	94.64%	31.76%	99.97%	95.70%	36.97%
Overall	70.75%	65.69%	60.72%	76.09%	71.51%	67.48%	78.26%	73.76%	69.78%

TABLE XII
RESULTS FOR THE INTER SET EXPERIMENT. THE NETWORK IS TRAINED ON SET 3 AND EVALUATED ON SET 2. THE ACCURACY IS COMPUTED FOR THE TOP 1, 5, AND 10 CLOSEST MATCHES.

SET 2	Recall @1			Recall @5			Recall @10		
<i>Transformations</i>	Triplet Loss	Siamese	Spatial Histogram	Triplet Loss	Siamese	Spatial Histogram	Triplet Loss	Siamese	Spatial Histogram
<i>Flipping</i>	30.02%	32.71%	33.86%	34.95%	37.91%	40.02%	37.36%	40.87%	43.68%
<i>Scaling</i>	85.05%	74.83%	83.66%	95.20%	81.59%	89.63%	97.36%	84.93%	91.32%
<i>Translation</i>	50.52%	55.42%	96.84%	71.59%	72.11%	98.86%	79.33%	78.46%	99.20%
<i>Rotation</i>	29.73%	36.34%	71.62%	46.92%	51.24%	83.66%	52.46%	56.94%	87.39%
<i>Salt & Pepper Noise</i>	99.93%	99.53%	92.29%	99.98%	99.90%	96.54%	99.98%	99.93%	97.74%
<i>Gamma Correction</i>	96.47%	45.02%	0.67%	98.61%	58.11%	1.39%	99.23%	63.51%	2.24%
<i>Blurring</i>	100.00%	99.90%	94.63%	100.00%	100.00%	97.16%	100.00%	100.00%	97.79%
<i>Shearing</i>	100.00%	99.85%	87.69%	100.00%	99.98%	93.76%	100.00%	99.98%	95.32%
<i>Perspective Transform</i>	56.77%	58.26%	86.77%	67.46%	66.39%	92.99%	74.35%	70.97%	94.43%
<i>Warping</i>	96.72%	95.47%	98.76%	99.70%	99.28%	99.65%	99.85%	99.53%	99.78%
<i>Filters</i>	99.95%	94.85%	33.48%	100.00%	97.56%	47.61%	100.00%	98.38%	53.51%
Overall	76.83%	72.02%	70.93%	83.13%	78.55%	76.48%	85.45%	81.23%	78.40%

TABLE XIII

RESULTS FOR THE INTER SET EXPERIMENT. THE NETWORK IS TRAINED ON SET 2 AND EVALUATED ON SET 4. THE ACCURACY IS COMPUTED FOR THE TOP 1, 5, AND 10 CLOSEST MATCHES.

SET 4	Recall @1			Recall @5			Recall @10		
<i>Transformations</i>	Triplet Loss	Siamese	Spatial Histogram	Triplet Loss	Siamese	Spatial Histogram	Triplet Loss	Siamese	Spatial Histogram
<i>Black Hair</i>	98.00%	92.00%	29.00%	99.00%	98.00%	51.00%	100.00%	99.00%	61.00%
<i>Blonde Hair</i>	100.00%	88.00%	26.00%	100.00%	97.00%	41.00%	100.00%	99.00%	56.00%
<i>Brown Hair</i>	93.00%	92.00%	27.00%	97.00%	97.00%	40.00%	99.00%	98.00%	49.00%
<i>Gender</i>	100.00%	97.00%	33.00%	100.00%	99.00%	63.00%	100.00%	99.00%	71.00%
<i>Aged</i>	100.00%	94.00%	46.00%	100.00%	98.00%	61.00%	100.00%	99.00%	70.00%
Overall	98.20%	93.82%	32.20%	99.20%	98.16%	51.20%	99.80%	99.00%	61.40%

TABLE XIV

RESULTS FOR THE INTER SET EXPERIMENT. THE NETWORK IS TRAINED ON SET 4 AND EVALUATED ON SET 1. THE ACCURACY IS COMPUTED FOR THE TOP 1, 5, AND 10 CLOSEST MATCHES.

SET 1	Recall @1			Recall @5			Recall @10		
<i>Transformations</i>	Triplet Loss	Siamese	Spatial Histogram	Triplet Loss	Siamese	Spatial Histogram	Triplet Loss	Siamese	Spatial Histogram
<i>Flipping</i>	28.55%	31.38%	29.26%	31.20%	35.84%	32.61%	32.68%	38.15%	34.52%
<i>Scaling</i>	60.21%	75.93%	61.36%	68.99%	85.17%	71.68%	72.53%	88.44%	74.89%
<i>Translation</i>	31.97%	70.24%	85.06%	47.64%	86.03%	91.88%	54.40%	90.50%	93.60%
<i>Rotation</i>	16.80%	37.95%	35.28%	27.82%	54.31%	50.19%	33.26%	60.90%	56.16%
<i>Salt & Pepper Noise</i>	78.61%	58.74%	88.60%	84.65%	65.96%	93.64%	86.86%	68.92%	94.95%
<i>Gamma Correction</i>	46.89%	11.96%	0.12%	57.26%	18.33%	0.38%	61.46%	21.56%	0.55%
<i>Blurring</i>	85.46%	52.06%	89.92%	90.88%	63.62%	94.21%	92.72%	68.22%	95.33%
<i>Shearing</i>	98.74%	99.53%	86.75%	99.72%	99.92%	92.36%	99.82%	99.97%	93.91%
<i>Perspective Transform</i>	55.09%	60.27%	77.81%	60.99%	69.96%	86.62%	63.86%	74.20%	89.10%
<i>Warping</i>	79.47%	98.42%	94.10%	89.78%	99.79%	96.93%	92.75%	99.89%	97.58%
<i>Filters</i>	95.27%	63.57%	19.67%	97.50%	73.21%	31.76%	98.22%	76.77%	36.97%
Overall	61.55%	60.00%	60.72%	68.77%	68.38%	67.48%	71.69%	71.59%	69.78%

TABLE XV

RESULTS FOR THE INTER SET EXPERIMENT. THE NETWORK IS TRAINED ON SET 4 AND EVALUATED ON SET 2. THE ACCURACY IS COMPUTED FOR THE TOP 1, 5, AND 10 CLOSEST MATCHES.

SET 2	Recall @1			Recall @5			Recall @10		
<i>Transformations</i>	Triplet Loss	Siamese	Spatial Histogram	Triplet Loss	Siamese	Spatial Histogram	Triplet Loss	Siamese	Spatial Histogram
<i>Flipping</i>	32.36%	37.31%	33.86%	37.89%	46.42%	40.02%	41.39%	50.47%	43.68%
<i>Scaling</i>	70.62%	85.97%	83.66%	80.87%	93.88%	89.63%	85.30%	96.07%	91.32%
<i>Translation</i>	51.79%	86.77%	96.84%	70.37%	96.44%	98.86%	76.54%	98.18%	99.20%
<i>Rotation</i>	30.42%	56.69%	71.62%	47.29%	76.52%	83.66%	54.65%	83.13%	87.39%
<i>Salt & Pepper Noise</i>	85.35%	66.29%	92.29%	91.64%	75.67%	96.54%	93.28%	79.78%	97.74%
<i>Gamma Correction</i>	58.51%	19.80%	0.67%	71.02%	31.27%	1.39%	77.06%	36.54%	2.24%
<i>Blurring</i>	91.89%	65.20%	94.63%	96.39%	78.76%	97.16%	97.59%	84.10%	97.79%
<i>Shearing</i>	99.63%	99.90%	87.69%	99.98%	100.00%	93.76%	100.00%	100.00%	95.32%
<i>Perspective Transform</i>	61.99%	72.79%	86.77%	72.89%	85.12%	92.99%	77.34%	89.30%	94.43%
<i>Warping</i>	90.02%	99.70%	98.76%	96.82%	99.98%	99.65%	98.21%	100.00%	99.78%
<i>Filters</i>	98.01%	73.66%	33.48%	99.40%	84.00%	47.61%	99.80%	87.61%	53.51%
Overall	70.05%	69.46%	70.93%	78.60%	78.91%	76.48%	81.92%	82.29%	78.40%

TABLE XVI
RESULTS FOR THE INTER SET EXPERIMENT. THE NETWORK IS TRAINED ON SET 4 AND EVALUATED ON SET 4. THE ACCURACY IS COMPUTED FOR THE TOP 1, 5, AND 10 CLOSEST MATCHES.

SET 3	Recall @1			Recall @5			Recall @10		
<i>Transformations</i>	Triplet Loss	Siamese	Spatial Histogram	Triplet Loss	Siamese	Spatial Histogram	Triplet Loss	Siamese	Spatial Histogram
<i>Cycle GAN</i>									
<i>Van-gogh</i>	86.37%	43.98%	5.07%	94.13%	61.89%	10.75%	96.32%	67.46%	14.03%
<i>Monet</i>	70.05%	8.36%	3.78%	82.99%	14.93%	8.26%	87.36%	19.30%	11.14%
<i>Ukiyoe</i>	24.78%	4.58%	0.70%	38.41%	8.86%	2.69%	43.28%	10.15%	3.98%
<i>Cezanna</i>	86.17%	35.82%	4.08%	93.53%	51.34%	8.46%	95.62%	57.71%	11.74%
<i>Cartoon GAN</i>									
<i>Shinkai</i>	83.08%	42.59%	7.76%	91.44%	55.62%	15.32%	93.23%	61.29%	18.81%
<i>Hayao</i>	70.05%	29.55%	6.27%	78.01%	41.39%	11.34%	81.19%	45.47%	16.12%
<i>Hosoda</i>	70.25%	30.25%	3.38%	83.08%	39.80%	7.06%	85.77%	43.48%	8.96%
<i>Paprika</i>	74.63%	29.95%	8.56%	82.19%	40.30%	14.93%	85.37%	44.28%	18.51%
Overall	70.67%	36.11%	4.94%	80.47%	46.01%	9.88%	83.52%	49.90%	12.92%