캡스톤 디자인
'딥페이크 탐지'

#12. 논문 작성 및 Noise(Gaussian + Sharpening + JPEG)

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지난 캡스톤 회의 내용

<코드 수정 및 실험>

각각 공격별로 강도 (Lv1~Lv10)까지 inference 진행

< '한국정보처리학회 춘계학술대회' 논문 작성>

논문에 넣을 실험 진행

(deepfake detector에 대한 성능, 공격별 강도 (Lv1~Lv10)까지 detector 성능 하락 결과,

각 공격별 adversarial training 결과)

deepfake detector 에 대한 성능 확인

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Epoch 1/3
Train:   0%|           | 0/157 [00:00<?, ?it/s]/usr/local/lib/python3.7/dist-packages/torch/utils
  cpuset_checked))
Train: 100%|█████████| 157/157 [06:19<00:00,  2.42s/it, loss - 0.0386, acc - 0.990]
Valid: 100%|█████████| 57/57 [00:57<00:00,  1.01s/it, loss - 0.0024, acc - 1.000]
Epoch 2/3
Train: 100%|█████████| 157/157 [05:43<00:00,  2.19s/it, loss - 0.0064, acc - 0.998]
Valid: 100%|█████████| 57/57 [00:46<00:00,  1.23it/s, loss - 0.7988, acc - 0.741]
Epoch 3/3
Train: 100%|█████████| 157/157 [05:41<00:00,  2.18s/it, loss - 0.0004, acc - 1.000]
Valid: 100%|█████████| 57/57 [00:46<00:00,  1.23it/s, loss - 0.0015, acc - 1.000]
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origin real + fake 모델로 inference

gaussian

	loss	acc
level 1 (30)	7.4314	0.5
level 2 (60)	7.4317	0.5
level 3 (90)	7.5418	0.5
level 4 (120)	7.1817	0.5
level 5 (150)	6.7949	0.5
level 6 (180)	6.3247	0.5
level 7 (210)	5.8895	0.5
level 8 (240)	5.4577	0.5
level 9 (270)	4.9926	0.5
level 10 (300)	4.6214	0.5

sharpening

	loss	acc
level 1 (3)	1.9771	0.631
level 2 (5)	6.5044	0.5
level 3 (7)	7.5200	0.5
level 4 (9)	7.4890	0.5
level 5 (11)	7.1650	0.5
level 6 (13)	6.7262	0.5
level 7 (15)	6.2417	0.5
level 8 (17)	5.7723	0.5
level 9 (19)	5.3238	0.5
level 10 (21)	4.9347	0.5

jpeg

	loss	acc
level 1 (90)	0.019	0.996
level 2 (85)	0.021	0.991
level 3 (75)	0.115	0.948
level 4 (65)	0.369	0.846
level 5 (55)	0.605	0.761
level 6 (45)	0.845	0.673
level 7 (35)	1.177	0.566
level 8 (25)	1.439	0.52
level 9 (15)	1.418	0.503
level 10 (5)	0.813	0.518

(jpeg, sharpening, gaussian)이 랜덤하게 적용된 이미지로 adversarial training 한 모델로 inference

gaussian

	loss	acc
level 1 (30)	0.0777	0.979
level 2 (60)	0.0777	0.979
level 3 (90)	0.0768	0.977
level 4 (120)	0.0874	0.973
level 5 (150)	0.1092	0.958
level 6 (180)	0.1361	0.951
level 7 (210)	0.1550	0.937
level 8 (240)	0.1892	0.918
level 9 (270)	0.2148	0.909
level 10 (300)	0.2531	0.8939

sharpening

	loss	acc
level 1 (3)	0.7165	0.854
level 2 (5)	1.0759	0.823
level 3 (7)	1.1064	0.820
level 4 (9)	0.9988	0.821
level 5 (11)	0.8597	0.821
level 6 (13)	0.7310	0.844
level 7 (15)	0.6232	0.859
level 8 (17)	0.5390	0.880
level 9 (19)	0.4750	0.898
level 10 (21)	0.4212	0.903

jpeg

	loss	acc
level 1 (90)	0.1034	0.974
level 2 (85)	0.0739	0.982
level 3 (75)	0.0730	0.981
level 4 (65)	0.1200	0.962
level 5 (55)	0.1791	0.932
level 6 (45)	0.2530	0.891
level 7 (35)	0.4086	0.829
level 8 (25)	0.7135	0.721
level 9 (15)	1.1946	0.605
level 10 (5)	1.2593	0.584