PLASS-NIA 인공지능학습데이터구축사업 (2021)

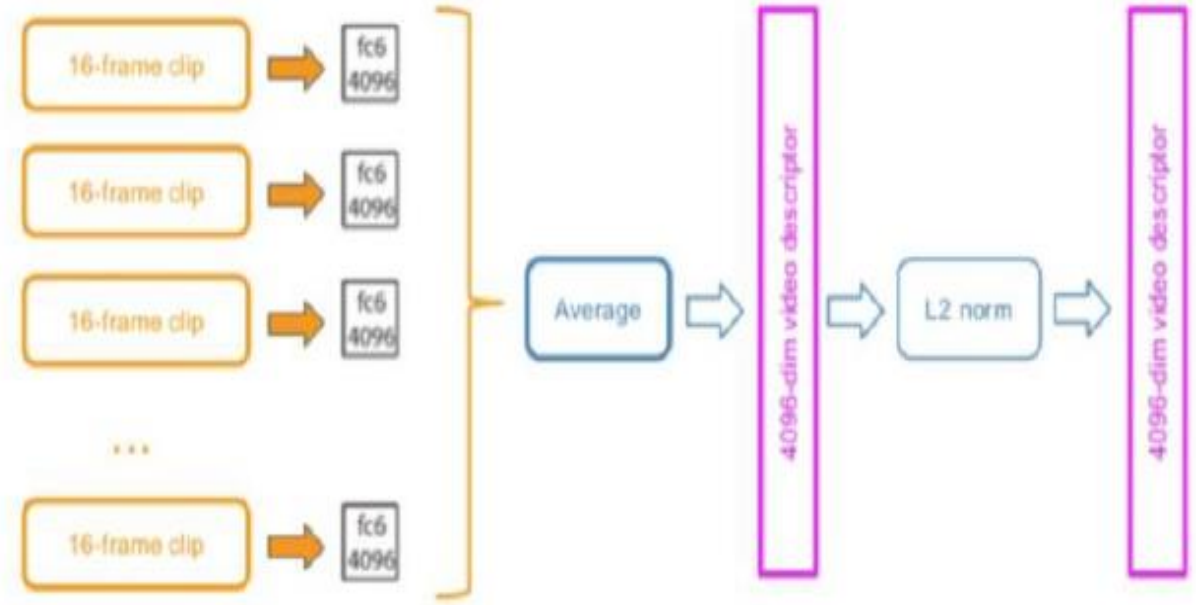
C3D 2021.07.27

5팀(김도현, 전은성)

목차

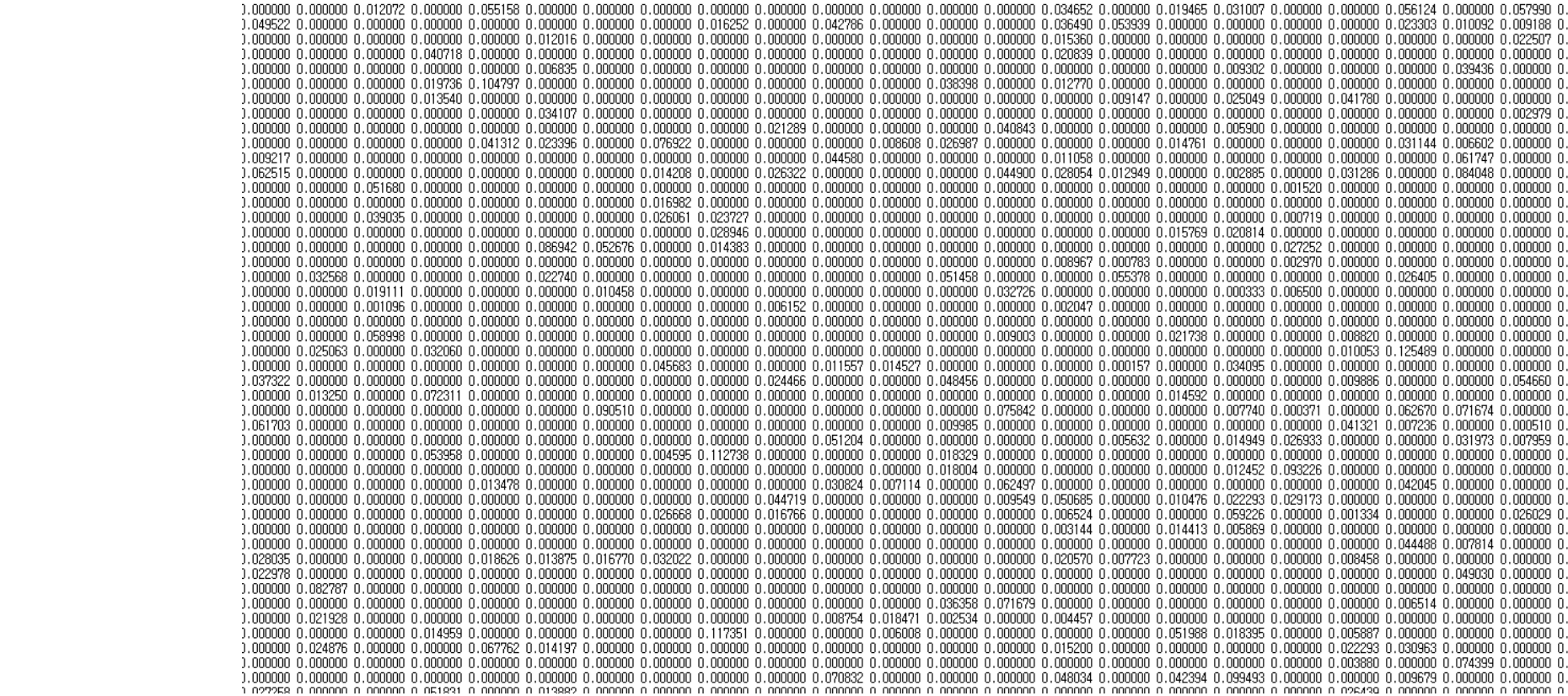
1. 학습데이터
2. C3D모델 학습
1. 향후 계획

1. 학습데이터

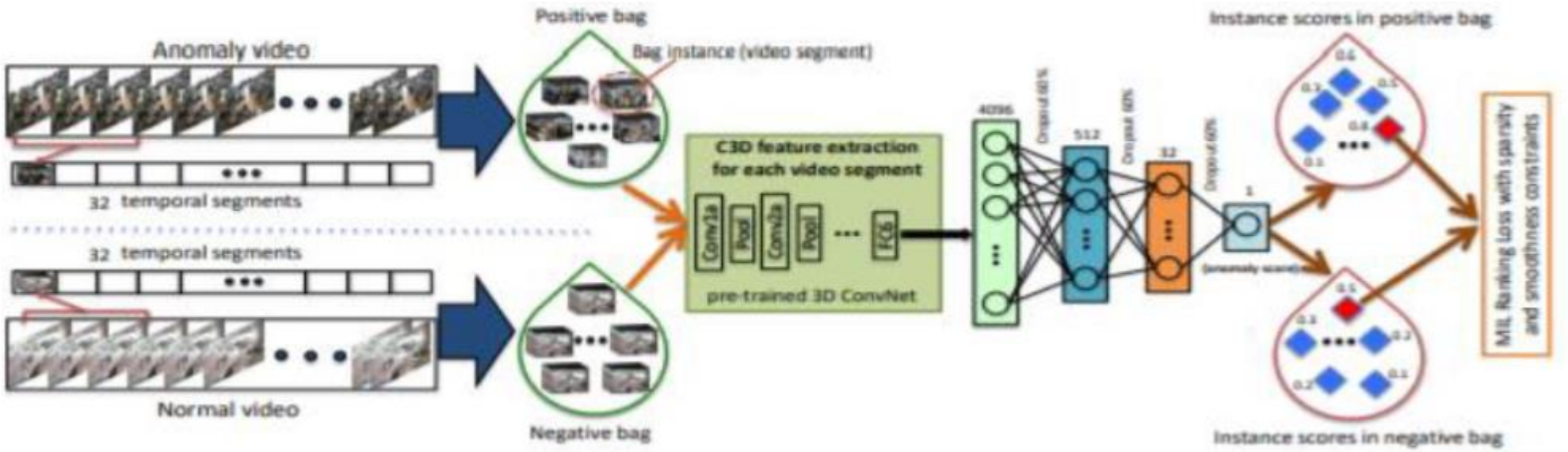


- 각 영상(.mp4) 에서 16프레임단위로 fc6-1 데이터를 생성
- 만들어진 데이터를 평균 내고 정규화 하여 C3D feature 텍스트를 추출

1. 학습데이터



1. 학습데이터



- 하나의 영상을 32개의 segment c3d feature로 나눈 결과를 bag에 넣으면 이런 세그먼트 하나하나가 bag instance가 됨.
- 해당 instance는 mean, normalization을 해주고 이를 모델에 넣어 각 bag instance의 이상행동 score를 정함.
- positive bag과 negative bag 안의 가장 높은 score를 가진 instance를 비교하여 positive bag instance의 score가 더 크다면 맞게 판단했고, negative bag instance의 score가 더 크다면 틀린 판단을 했다고 정의.

➡
- 이상, 정의 행동 데이터의 영상 길이를 조정하고 각 영상의 C3D feature 추출 후 32개의 세그먼트로 나눔
- 전처리 된 데이터를 모델에 학습시켜 이상행동 score를 인식, 판단

1. 학습데이터

- abnormal_video_001_C.txt
- abnormal_video_002_C.txt
- abnormal_video_003_C.txt
- abnormal_video_004_C.txt
- abnormal_video_005_C.txt
- abnormal_video_006_C.txt
- abnormal_video_007_C.txt
- abnormal_video_008_C.txt
- abnormal_video_009_C.txt
- abnormal_video_010_C.txt
- abnormal_video_011_C.txt
- abnormal_video_012_C.txt
- abnormal_video_013_C.txt
- abnormal_video_014_C.txt

- normal_video_001_C.txt
- normal_video_002_C.txt
- normal_video_003_C.txt
- normal_video_004_C.txt
- normal_video_005_C.txt
- normal_video_006_C.txt
- normal_video_007_C.txt
- normal_video_008_C.txt
- normal_video_009_C.txt
- normal_video_010_C.txt
- normal_video_011_C.txt
- normal_video_012_C.txt
- normal_video_013_C.txt

2. C3D모델 학습

TrainingAnomalyDetector_public.py 1 M | video.sh | output_list_video_prefix.txt | input_list_video.txt | test.py 1 | [Prep]_mj_02_C3DV0_e

1 > TrainingAnomalyDetector_public.py > ...

```
38  model = Sequential()
39  model.add(Dense(512, input_dim=4096,activation='relu'))
40  model.add(Dropout(0.6))
41  model.add(Dense(32))
42  model.add(Dropout(0.6))
43  model.add(Dense(1))
44  print(model.summary())
45
46  def load_model(json_path):
47      model = model_from_json(open(json_path).read())
48      return model
49
50  def load_weights(model, weight_path): # Function to load the model weights
51      dict2 = loadmat(weight_path)
52      dict = conv_dict(dict2)
53      i = 0
54      for layer in model.layers:
55          weights = dict[str(i)]
56          layer.set_weights(weights)
57          i += 1
58      return model
59
60  def conv_dict(dict2):
61      i = 0
62      dict = {}
63      for i in range(len(dict2)):
64          if str(i) in dict2:
65              if dict2[str(i)].shape == (0, 0):
66                  dict[str(i)] = dict2[str(i)]
67              else:
68                  weights = dict2[str(i)][0]
69                  weights2 = []
70                  for weight in weights:
71                      if weight.shape in [(1, x) for x in range(0, 5000)]:
72                          weights2.append(weight[0])
```

문제 31 | 출력 | 터미널 | 포트 | JUPYTER | 디버그 콘솔

```
    in_c_key=False)
  File "/home/NIA_AI_DATASET_2021-C3D/anaconda3/lib/python3.7/site-packages/theano/configparser.py", line 287, in AddConfigVar
    configparam.__get__(root, type(root), delete_key=True)
  File "/home/NIA_AI_DATASET_2021-C3D/anaconda3/lib/python3.7/site-packages/theano/configparser.py", line 335, in __get__
    self.__set__(cls, val_str)
  File "/home/NIA_AI_DATASET_2021-C3D/anaconda3/lib/python3.7/site-packages/theano/configparser.py", line 346, in __set__
    self.val = self.filter(val)
  File "/home/NIA_AI_DATASET_2021-C3D/anaconda3/lib/python3.7/site-packages/theano/configdefaults.py", line 116, in filter
    'You are tring to use the old GPU back-end. '
ValueError: You are tring to use the old GPU back-end. It was removed from Theano. Use device=cuda* now. See https://github.com/Theano/Theano/wiki/Conver
ormation.
```

3. 향후 계획

- 학습을 실행을 위한 환경 구축
- 테스트 및 결과 확인
- 개선 사항 수정

감사합니다

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