
간단한 오픈소스(AlexNet) 분석하기

사실은 실행을 위한 튜토리얼+시각화

Presented by :
Hyeon Kang

오픈소스(AlexNet) 분석하기

Github에는 오픈 소스가 많죠. 오픈 소스 분석이 공부에 대단히 도움이 됩니다. 오픈 소스 분석은 빌드부터 해야합니다.

비교적 간단한 소스코드라 아래 튜토리얼은 사실 아무것도 아니며 막막하실 때 한번 따라 하셔서 실행 먼저 해보시고 분석하시도록 만든 자료입니다.

라인 별로 로그 찍어가면서 학습하거나 모듈, 클래스, 메소드, 자료구조 및 알고리즘과 같이 Top-Down으로 학습하시면 TF 혹은 CNN의 구체적인 부분들이 명료해지리라 기대합니다.

문제가 생기면 issue 남겨주시거나 kang2000h@naver.com로 알려주시면 감사히 조치하겠습니다.

오픈소스(AlexNet) 분석하기

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kratzert/finetune_alexnet_with_tensorflow

Jupyter Notebook

★ 283

Code for finetuning AlexNet in TensorFlow >= 1.12

kratzert / finetune_alexnet_with_tensorflow

alexnet tensorflow deep-learning fine-tune

BSD-3-Clause license Updated on 5 Dec 2017

Code for finetuning AlexNet in TensorFlow >= 1.12 <https://kratzert.github.io/2017/02/24...>

tensorflow deep-learning fine-tune alexnet

17 commits 1 branch 2 releases 1 contributor BSD-3-Clause

Branch: master New pull request

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kratzert committed on 5 Dec 2017 Changed depth radius of lrn to 1e-5

.ipynb_checkpoints	Updated blog url	7 months ago
images	Adding content	4 months ago
.gitignore	Adding content	2 months ago
LICENSE	Create LICENSE	a year ago
README.md	added DOI	4 months ago
alexnet.py	Changed depth radius of lrn to 1e-5	2 months ago
caffe_classes.py	Adding content	a year ago
datagenerator.py	Changed name of Imagenet mean variable, fixes #21	4 months ago
finetune.py	Update finetune.py	6 months ago
validate_alexnet_on_imagenet.ipynb	Updated blog url	a year ago

Clone with HTTPS

Use Git or checkout with SVN using the web URL.

https://github.com/kratzert/finetune_alexnet_with_tensorflow

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본 소스코드를 참고했습니다.
고마워요. kratzert!

https://github.com/kratzert/finetune_alexnet_with_tensorflow

오픈소스(AlexNet) 분석하기

kang2000h / Deep_Learning

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No description, website, or topics provided.

15 commits 1 branch 0 releases 1 contributor

Branch: master New pull request

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https://github.com/kang2000h/Deep_Learning

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kang2000h finetune_alexnet_tutorial and visualization		
dicom-processing	arrangement	
etc	arrangement	
model	finetune_alexnet_tutorial and visualization	
rnn	arrangement	
README.md	Update README.md	

갖고 놀기 위한 유틸을 조금 넣었습니다.
필요하시면 clone하시고
model/cnn/finetune_alexnet_tutorial
보시면 필요한 파일만 있습니다.
테스트용 영상(celebA)도 있고요.

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kang2000h finetune_alexnet_tutorial and visualization Latest commit e186f1f 5 minutes ago

..		
alexnet.py	finetune_alexnet_tutorial and visualization	5 minutes ago
data.zip	finetune_alexnet_tutorial and visualization	5 minutes ago
datagenerator.py	finetune_alexnet_tutorial and visualization	5 minutes ago
finetune.py	finetune_alexnet_tutorial and visualization	5 minutes ago
label_generator.py	finetune_alexnet_tutorial and visualization	5 minutes ago
utils.py	finetune_alexnet_tutorial and visualization	5 minutes ago

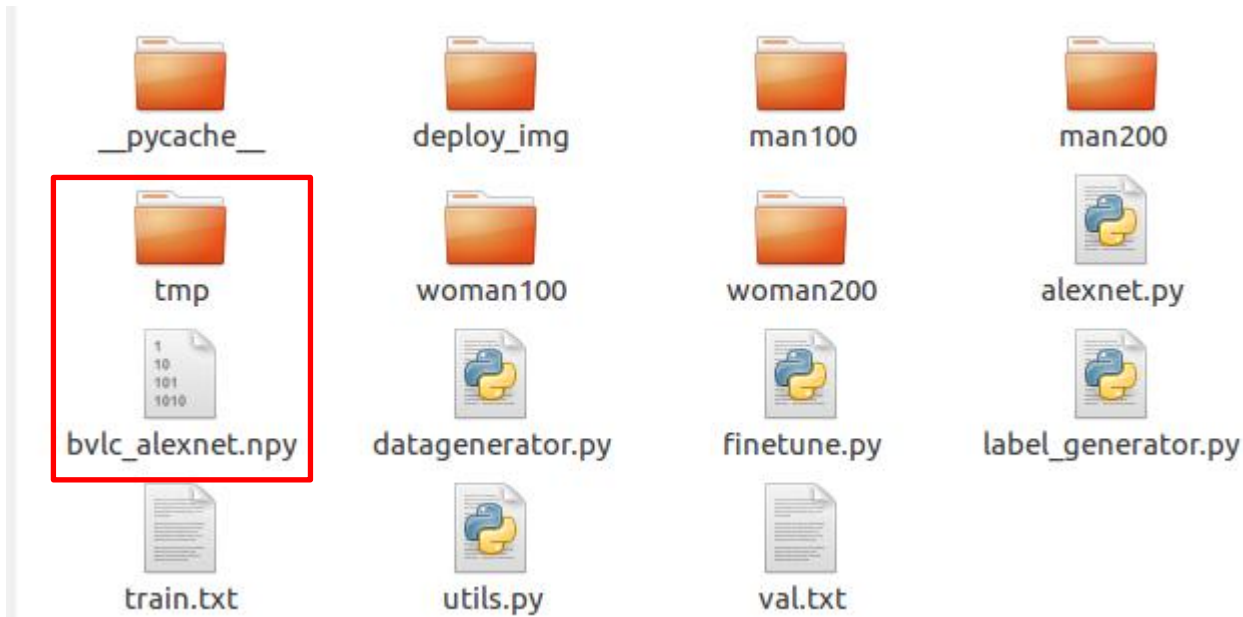
오픈소스(AlexNet) 분석하기

```
(tensorflow) root@donga-All-Series-Invalid-entry-length-16-Fixed-up-to-11:/home/
data/cnn_visualization# python label_generator.py --path_list ./man100 ./woman10
0 --train_rate 0.7
0 class num : 100
1 class num : 100
train_list 140
val_list 60
Do you want to save the paths?(Y/n)Y
Let me know save directory you want #^X
(tensorflow) root@donga-All-Series-Invalid-entry-length-16-Fixed-up-to-11:/home/
data/cnn_visualization# python label_generator.py --path_list ./man100 ./woman10
0 --train_rate 0.7
0 class num : 100
1 class num : 100
train_list 140
val_list 60
Do you want to save the paths?(Y/n)y
Let me know save directory you want to save #.
(tensorflow) root@donga-All-Series-Invalid-entry-length-16-Fixed-up-to-11:/home/
data/cnn_visualization#
```

`python label_generator.py --path_list ./man100 ./woman100 --train_rate 0.7`

위 명령을 사용해서 저장하겠냐고 하면 y, 어디에 저장하겠냐고 하면 .(:현재디렉토리)를 입력합니다. 그러면 각 데이터 폴더로부터 훈련/검증 셋을 7:3으로 나누어 train.txt/val.txt 파일을 만들어줍니다.

오픈소스(AlexNet) 분석하기



tmp 이름의 빈 폴더를 만들어줍니다. (소스 수정하셔서 자동으로 되게 하셔도 되죠. 저는 생략했습니다..)
data.zip 에서 데이터 폴더(man100, deploy_img etc)와 토론토 대학에서 제공하는 파라미터 파일(*.npy) 넣어줍니다.

http://www.cs.toronto.edu/~guerzhoy/tf_alexnet/

오픈소스(AlexNet) 분석하기

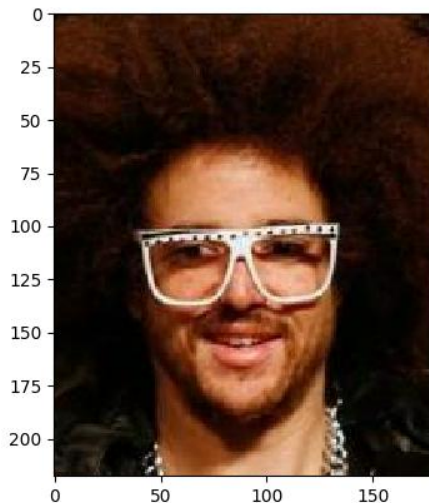
```
root@donga-All-Series-Invalid-entry-length-16-Fixed-up-to-11: /home/data/cnn_visualizat
2018-02-13 09:43:32.384554 Validation Accuracy = 0.9167
2018-02-13 09:43:32.384609 Saving checkpoint of model...
2018-02-13 09:43:37.459067 Model checkpoint saved at ./tmp/checkpoints/model_epo
ch11.ckpt
2018-02-13 09:43:37.459124 Epoch number: 12
2018-02-13 09:43:37.922182 Train Accuracy = 0.9857
2018-02-13 09:43:37.922247 Start validation
2018-02-13 09:43:38.018929 Validation Accuracy = 0.9333
2018-02-13 09:43:38.019059 Saving checkpoint of model...
2018-02-13 09:43:43.066305 Model checkpoint saved at ./tmp/checkpoints/model_epo
ch12.ckpt
2018-02-13 09:43:43.066357 Epoch number: 13
2018-02-13 09:43:43.516198 Train Accuracy = 0.9929
2018-02-13 09:43:43.516276 Start validation
2018-02-13 09:43:43.604690 Validation Accuracy = 0.9333
2018-02-13 09:43:43.604782 Saving checkpoint of model...
2018-02-13 09:43:49.071602 Model checkpoint saved at ./tmp/checkpoints/model_epo
ch13.ckpt
2018-02-13 09:43:49.071657 Epoch number: 14
2018-02-13 09:43:49.539823 Train Accuracy = 0.9857
2018-02-13 09:43:49.539895 Start validation
2018-02-13 09:43:49.640520 Validation Accuracy = 0.8833
2018-02-13 09:43:49.640597 Saving checkpoint of model...
```

`python finetune.py --istrain True`

위 명령으로 훈련을 시켜줍니다. 검증단계 정확도가 90%에 근접하면 Ctrl +X 누르셔서 멈추시면 됩니다. tmp/checkpoints 디렉토리에 모델이 저장되었습니다.

오픈소스(AlexNet) 분석하기

```
바탕 화면
root@donga-All-Series-Invalid-entry-length-16-Fixed
031] Found device 1 with properties:
name: GeForce GTX 1080 major: 6 minor: 1 memoryClock
pciBusID: 0000:02:00.0
totalMemory: 7.99GiB freeMemory: 7.23GiB
2018-02-13 09:56:04.888628: I tensorflow/core/comm
046] Device peer to peer matrix
2018-02-13 09:56:04.888646: I tensorflow/core/comm
052] DMA: 0 1
2018-02-13 09:56:04.888652: I tensorflow/core/comm
062] 0: Y N
2018-02-13 09:56:04.888657: I tensorflow/core/comm
062] 1: N Y
2018-02-13 09:56:04.888665: I tensorflow/core/comm
121] Creating TensorFlow device (/device:GPU:0) ->
1080, pci bus id: 0000:01:00.0, compute capability
2018-02-13 09:56:04.888671: I tensorflow/core/comm
121] Creating TensorFlow device (/device:GPU:1) ->
1080, pci bus id: 0000:02:00.0, compute capability
# isTrain : False
Reading model parameters from ./tmp/checkpoints/mod
# decoded_img : (219, 178, 3)
P(man|data) : 1.0
P(woman|data) : 0.0
```



```
python finetune.py --input_path ./deploy_img/m1.jpg -- istrain False
```

위 명령으로 한 장씩 테스트 해보겠습니다. 입력 영상과 함께 사후 확률을 출력합니다. 이미지를 바꿔가면서 출력해보세요. 다른 크기를 넣어도 되지만 잘 틀릴 수도 있습니다.

오픈소스(AlexNet) 분석하기

```
root@donge:~/All-Series-Invalid-Entry-Length-16-Fixed-up-to-11:/home/d...
031] Found device 1 with properties:
name: GeForce GTX 1080 major: 0 minor: 1 memoryClockRate(GHz): 1.8
pciBusID: 0000:02:00.0
totalMemory: 7.99GiB freeMemory: 7.28GiB
2018-02-13 10:01:21.088044: I tensorflow/core/common_runtime/gpu/gp
046] Device peer to peer matrix
2018-02-13 10:01:21.088057: I tensorflow/core/common_runtime/gpu/gp
052] DMA: 0.1
2018-02-13 10:01:21.088063: I tensorflow/core/common_runtime/gpu/gp
062] 0: V.N
2018-02-13 10:01:21.088068: I tensorflow/core/common_runtime/gpu/gp
062] 1: N.Y
2018-02-13 10:01:21.088077: I tensorflow/core/common_runtime/gpu/gp
121] Creating TensorFlow device (/device:GPU:0) -> (device: 0, name
1080, pci bus id: 0000:02:00.0, compute capability: 6.1)
2018-02-13 10:01:21.088083: I tensorflow/core/common_runtime/gpu/gp
121] Creating TensorFlow device (/device:GPU:1) -> (device: 1, name
1080, pci bus id: 0000:02:00.0, compute capability: 6.1)
isTrain: False
Reading model parameters from ./tmp/checkpoints/model_epoch21.ckpt
e decoded img: (315, 242, 3)
P(main[data]): 1.0
P(woman[data]): 0.0
```



`python finetune.py --input_path ./deploy_img/w10.jpg --visualize True`

위 명령으로 영상을 바꿔가며 시각화 할 수 있습니다.
흑백으로 보고 싶으시면 소스코드 상에서 바꾸면 되는데 그냥 밝은 것은 흰색 남색은 검정색이라고 보시면 됩니다. `imshow()`에서 `cmap='gray'` 추가하시면 됩니다.

