Chan @ Seoul AI, 2018.05.12

- Goal: implement beam search for a caption generator model based on Google's Show-and-Tell [arxiv:1609.06647].
- Took quite a time to remind myself what I was working on a few months ago, still working on debugging my implementation.
- So, instead let me show you my web application demonstrating the model.
 - <u>http://209.51.170.166:9999</u>
 - o <u>demo slides</u>

Named Entity Recognition for Medicines



DONE

- Customize tokenizer
- Before: ['L', '-', 'carnitine', ' ', '1g(0.2g', '/', 'mL', ')']
- After: ['L', '-', 'carbocysteine', ' ', '1g', '(', '20mg', '/', 'mL', ')']

UNEXPECTED

 Accuracy of NER dropped after customized tokenization - New annotation

WORKING ON

FEW TIPS

- Use high dropout rate for small dataset at first and decay it down

cyhur

- Use avg of parameter, not the most recent value

adelshb

2D Map of Daily Production of Energy by Type in France in 2017

- Scrapping data from a webapp
- Data preprocessing:
 - Create daily values data set
 - Dimension reduction
- Dataviz with d3js





emilio

uTensor

Sensors Board

Travel Time Based Location Selection

How do you know the best area for a meetup?

- First criteria: locations that are available and have enough seats to fit all members
- Second criteria: locations that are as close to all members as possible

How do you find the best place to live?

• Given two or more locations that you want to minimize travel time to, it's it's difficult to find suitable living spaces without checking manually



raj



Reinforcement Learning Air Striker SEGA

martinkersner



Tensorflow Object Detection Automation Tool

The contents in this rectangle are subtitles for those who can not speak Korean. Because I am not fluent in English, I translated it through Google Translate.

sulki kim

Goal : Custom object detection automation



Tensorflow object detection To perform object detection on a custom image, you need to do the above. This process is quite complex and difficult, and we decided to create an automation tool.

Custom Image Collecting (each 100 image) [raccoon, otter, meerkat, pomeranian, panda]





1. closeup meerkat face

1. fischotter%2c lut pomeranian tha ra lutra



1. raccoon-grass.ad apt.945.1



2. 5-face

3.

ed



2. csm meng men g_baby_1_88cad 0f74f

2. kcd mdsl 400x4 00



3. animal-hero-pan da3



3. hh-us-lc-animals -raccoon-facts-1



3. pomeranian-onsea otter cropp white-01



3zeOqFqu_400x 400



4. 157636471

Using [google - image - download] open source

1.

nk_you

We collect data on five kinds of cute animals. Raccoon, Otter, Mearkat, Pomeranian, Panda. We prepared 100 sheets each. I used the open source google-image-download tool.

Image Labeling [raccoon , otter , meerkat , pomeranian , panda]



Using [LabelImg] open source

Create a box boundary by hand on each of the 500 images. It took about an hour for 500 sheets. This part can not be automated. I have used LabelImg open source.

Transform Tensorflow Record file

ksulki.tensorflow@instan	ce-1:~/proje	cts\$ python tfg	enerator.py	1					
[INFO tfgenerator.py:167] 2018-05-12	06:32:50,023 >	TF Record	Generator Start					
[INFO tfgenerator.py:21]	2018-05-12	06:32:50,165 >		TF Record S	ummary				
[INFO tfgenerator.py:22]	2018-05-12	06:32:50,165 >	ID	NAME	Train	Validate			
[INFO tfgenerator.py:24]	2018-05-12	06:32:50,165 >	1	meerkat	136	19			
[INFO tfgenerator.py:24]	2018-05-12	06:32:50,165 >	2	otter	99	14			
[INFO tfgenerator.py:24]	2018-05-12	06:32:50,165 >	3	panda	105	15			
[INFO tfgenerator.py:24]	2018-05-12	06:32:50,165 >	4	raccoon	101	14			
[INFO tfgenerator.py:24]	2018-05-12	06:32:50,165 >	5	pomeranian	95	13			
[INFO tfgenerator.py:196] 2018-05-12	06:32:50,877 >	TF Record	Generator End [Total Generato	r time :	0 Hour 0	Minute (Second]

We gave each object an ID and split the Tainn set and the Validate set with the set split ratio. The ratio can be set as an option, and the data is automatically generated by shuffling. The reason that the label number is not exactly 500 is because there are several labels in one image.

Main process [select model , step setting , transfer learning , exporting]

ksulki.tensorflow@instance-1:~/projects\$ python main.py	[INF0]main.py:92] 2018-05-12 06:10:57.304 > Program start [model : faster_rcnn_inception_resnet_v2_atrous_coco_2018_01_28, num step					
*****	[INFO]ULIS.py:75] 2016-05-12 06:10:37,304 > laster_fchm_Inteption_resnet_v2_atrous_coco_2016_01_28 Mownload success [INFO]ULIS.py:110] 2018-05-12 06:11:14,945 > faster rcnn inception resnet v2 atrous coco 2018 01 28 Download success					
++++++ Auto re training tool ++++++	[INFO]main.py:22] 2018-05-12 06:11:15,055 > Transfer Learning start					
	[INFO] fgenerator.py:167] 2018-05-12 06:32:50,023 > TF Alecord Generator Start					
	[INF0 tfgenerator.py:21] 2018-05-12 06:32:50,165 > TF Record Summary					
+++++++++++++++++++++++++++++++++++++++	[INF0]tfgenerator.py:22]2018-05-12 06:32:50,165 > ID NAME Train Validate [INF0]tfgenerator.py:24]2018-05-12 06:32:50,165 > I megrkat 136 19					
	[INFO] (regenerator.py:24] 2018-05-12 06:32:50,165 > 2 otter 99 14					
Select Model	[INFO tfgenerator.py:24] 2018-05-12 06:32:50,165 > 3 panda 105 15					
Select Model	[INF0]t1generator.py:24] 2018-05-12 06:32:50,165 > 4 raccoon 101 14 [INF0]t1generator.py:24] 2018-05-12 06:32:50,165 > 5 pomeranian 95 13					
	[INFO[Inference of .py:24] 2018-05-12 06:32:50,877 > TF Record Generator End [Total Generator time : 0 Hour 0 Minute 0 Second]					
1. ssd mobilenet v1 coco	[INFO]main.py:92] 2018-05-12 06:36:18,621 > Program start [model : faster_rcnn_inception_v2_coco_2018_01_28, num steps : 20000]					
2 ssd mobilenet v2 coco	[INFO]main.py:22] 2018-05-12 06:36:18,622 > Transfer Learning Start [FBR06]main.py:24] 2018-05-12 06:36:19.47] > Transfer Leagnning Error					
	[INFO]main.py;92] 2018-05-12 06:36:52,094 > Program start [model : faster_rcnn_inception_v2_coco_2018_01_28, num steps : 20000]					
3. ssd_inception_v2_coco	[INFO]main.py:22] 2018-05-12 06:36:52,095 > Transfer learning start					
4. faster rcnn inception v2 coco	[ERKUN[Main.py:34] 2018-05-12 06:49:02./9/ > Franster Leaarning Error [TNPCDImain.py:24] 2018-05-12 06:49:34 533 > Program Start [mode] - faster ronp incention v2 coco 2018 01 28 num stens - 20000]					
5 faster ronn respet50 coco	[INFO]main.py:22] 2018-05-12 06:49:34,534 > Transfer Learning start					
	[INFO]main.py:38] 2018-05-12 07:01:22,521 > Transfer Learning Success [Total Learning time : 0 Hour 11 Minute 47 Second					
o. Taster_renn_resnetso_towproposats_coco	[INFO]main.py:42/2016-05-12 07:01:22,321 > Export model Success					
7. rfcn_resnet101_coco	[INFO main.py:61] 2018-05-12 07:01:33,520 > Evaluate model start					
8. faster rcnn resnet101 coco						
9 faster ronn respet101 lowproposals coco						
10. Taster_rcnn_inception_resnet_v2_atrous_coco						
<pre>11. faster_rcnn_inception_resnet_v2_atrous_lowproposals_coco</pre>						
12. faster rcnn nas						
13 faster room has lowproposals coco						
Select Model Number : /						
Setect Model Mulliber . 4						
Innut number store . 20000						
Input number steps : 20000						

object detection model zoo box type All models can be transferred learning. I have made all the operations to log. In this step, you select a model and set a training step. Since the capacity of the model exceeds 1 gigabyte, the basic module has no model and is downloaded every time it is selected.

Main process

[select model , step setting , transfer learning , exporting]

Setting the model and the training step will automatically perform the transfer learning, exporting, and evaluating.

Testing Google cloud Compute engine [16 vCPU , 60gb ram , Tesla P100 (16 gb vga)]

Model : Faster Rcnn Inception V2 Training Step : 20000 Last loss : 0.05453





I have created and tested a VM in the Google cloud. The VM consists of 16 cpu, 60 gigabytes of RAM and a Tesla p100 (\$ 1.559 per hour is still going out). The last loss value of 20000 training was 0.05453, which is a very good value. If you add a dataset or increase the training step, you are expected to drop further.

Test Image prediction





As a result of predicting the test image, each of the large images was 100% detected, but the small thumbnail images were less accurate.

Next step

- 1. Change output Format For Active Learning
- 2. Add Mask model
- 3. Hyperaprameter tuning option add

The next development is an active learning module that allows you to convert the detected results directly into a training set, adding a mask model, and adding modules that allow you to optionally modify the hyper parameters of your models.