

Programming assignment 10: Image Captioning with hybrid CNN-RNN Neural Network (only results on out-of-sample images)

In this final project you will define and train an image-to-caption model, that can produce descriptions for real world images!

Model architecture: CNN encoder and RNN decoder. (<https://research.googleblog.com/2014/11/a-picture-is-worth-thousand-coherent.html>)

You can download any image from the Internet and apply your model to it!

In [61]:

```
download_utils.download_file(  
    "http://www.bijouxandbits.com/wp-content/uploads/2016/06/portal-cake-10.jpg",  
    "portal-cake-10.jpg"  
)
```

In [62]:

```
apply_model_to_image_raw_bytes(open("portal-cake-10.jpg", "rb").read())
```

a cake with a fork and a fork on a plate



The cake is a lie !

Now it's time to find 10 examples where your model works good and 10 examples where it fails!

You can use images from validation set as follows:

```
show_valid_example(val_img_fns, example_idx=...)
```

You can use images from the Internet as follows:

```
! wget ...  
apply_model_to_image_raw_bytes(open("...", "rb").read())
```

If you use these functions, the output will be embedded into your notebook and will be visible during peer review!

When you're done, download your notebook using "File" -> "Download as" -> "Notebook" and prepare that file for peer review!

4.2. Examples where the model (kinda) works

4.2.1. "a man in a red shirt is playing soccer"

In [71]:

```
! wget https://www.khaosod.co.th/wp-content/uploads/2017/03/river.jpg
apply_model_to_image_raw_bytes(open("river.jpg", "rb").read())
```

```
--2018-07-08 14:51:05-- https://www.khaosod.co.th/wp-content/uploads/2017/03/river.jpg
Resolving www.khaosod.co.th (www.khaosod.co.th)... 27.254.93.164, 27.254.93.171, 27.254.93.172, ..
.
Connecting to www.khaosod.co.th (www.khaosod.co.th)|27.254.93.164|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 179425 (175K) [image/jpeg]
Saving to: 'river.jpg.1'
```

```
river.jpg.1          100%[=====>] 175.22K   181KB/s   in 1.0s
```

```
2018-07-08 14:51:07 (181 KB/s) - 'river.jpg.1' saved [179425/179425]
```

a man in a red shirt is playing soccer



4.2.2. "a plane flying in the air with a sky background"

In [75]:

```
! wget https://cdn-images-1.medium.com/max/1600/1*FG4i5rWK6GttYw14GcZFXA.jpeg
apply_model_to_image_raw_bytes(open("1*FG4i5rWK6GttYw14GcZFXA.jpeg", "rb").read())
```

```
Warning: wildcards not supported in HTTP.
--2018-07-08 14:53:43-- https://cdn-images-1.medium.com/max/1600/1*FG4i5rWK6GttYw14GcZFXA.jpeg
Resolving cdn-images-1.medium.com (cdn-images-1.medium.com)... 104.16.121.145, 104.16.117.145, 104.16.118.145, ...
Connecting to cdn-images-1.medium.com (cdn-images-1.medium.com)|104.16.121.145|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 305558 (298K) [image/jpeg]
Saving to: '1*FG4i5rWK6GttYw14GcZFXA.jpeg.3'
```

```
1*FG4i5rWK6GttYw14G 100%[=====>] 298.40K   --.-KB/s   in 0.01s
```

```
2018-07-08 14:53:43 (24.0 MB/s) - '1*FG4i5rWK6GttYw14GcZFXA.jpeg.3' saved [305558/305558]
```

a plane flying in the air with a sky background





4.2.3. "a man in a suit and tie standing next to a man"

In [92]:

```
! wget http://www.findingdulcinea.com/docroot/dulcinea/fd_images/news/on-this-day/Feb/On-this-Day-
-Nixon-Leaves-on-Diplomatic-Trip-to-China/news/0/image.jpg
apply_model_to_image_raw_bytes(open("image.jpg", "rb").read())
```

```
--2018-07-08 15:19:56-- http://www.findingdulcinea.com/docroot/dulcinea/fd_images/news/on-this-
day/Feb/On-this-Day--Nixon-Leaves-on-Diplomatic-Trip-to-China/news/0/image.jpg
Resolving www.findingdulcinea.com (www.findingdulcinea.com)... 64.34.95.105
Connecting to www.findingdulcinea.com (www.findingdulcinea.com)|64.34.95.105|:80... connected.
HTTP request sent, awaiting response... 200 OK
Length: 95232 (93K) [image/jpeg]
Saving to: 'image.jpg.2'
```

```
image.jpg.2          100%[=====>]  93.00K  --.-KB/s   in 0.02s
```

```
2018-07-08 15:19:57 (3.99 MB/s) - 'image.jpg.2' saved [95232/95232]
```

a man in a suit and tie standing next to a man



4.2.4. "a plane sitting on a runway with a sky background"

In [145]:

```
! wget https://upload.wikimedia.org/wikipedia/commons/a/aa/Defense.gov_News_Photo_110920-N-VN693-0
49_-_Sailors_prepare_an_F_A-
18C_Hornet_for_flight_operations_aboard_the_aircraft_carrier_USS_John_C._Stennis_CVN_74_as_the_shi
rates_in_the_5th_Fleet.jpg
apply_model_to_image_raw_bytes(open("Defense.gov_News_Photo_110920-N-VN693-049_-_
_Sailors_prepare_an_F_A-
18C_Hornet_for_flight_operations_aboard_the_aircraft_carrier_USS_John_C._Stennis_CVN_74_as_the_shi
rates_in_the_5th_Fleet.jpg", "rb").read())
```

```
--2018-07-08 16:21:31--
```

```
https://upload.wikimedia.org/wikipedia/commons/a/aa/Defense.gov_News_Photo_110920-N-VN693-049 - Sa
```

```

ilors_prepare_an_F_A-
18C_Hornet_for_flight_operations_ aboard_the_ aircraft_carrier_USS_John_C._Stennis_CVN_74_as_the_ship
rates_in_the_5th_Fleet.jpg
Resolving upload.wikimedia.org (upload.wikimedia.org)... 208.80.154.240, 2620:0:861:ed1a::2:b
Connecting to upload.wikimedia.org (upload.wikimedia.org)|208.80.154.240|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 203007 (198K) [image/jpeg]
Saving to: 'Defense.gov_News_Photo_110920-N-VN693-049_-_Sailors_prepare_an_F_A-
18C_Hornet_for_flight_operations_ aboard_the_ aircraft_carrier_USS_John_C._Stennis_CVN_74_as_the_ship
rates_in_the_5th_Fleet.jpg'

```

```

Defense.gov_News_Ph 100%[=====>] 198.25K  --.-KB/s   in 0.002s

```

```

2018-07-08 16:21:31 (88.6 MB/s) - 'Defense.gov_News_Photo_110920-N-VN693-049_-_
_Sailors_prepare_an_F_A-
18C_Hornet_for_flight_operations_ aboard_the_ aircraft_carrier_USS_John_C._Stennis_CVN_74_as_the_ship
rates_in_the_5th_Fleet.jpg' saved [203007/203007]

```

a plane sitting on a runway with a sky background



4.2.5. "a bird is standing on a rock in the wild"

In [149]:

```

! wget http://static.sites.yip.com/var/m_3/35/356/11189690/1373218-eagle.jpg
apply_model_to_image_raw_bytes(open("1373218-eagle.jpg", "rb").read())

```

```

--2018-07-08 16:26:18-- http://static.sites.yip.com/var/m_3/35/356/11189690/1373218-eagle.jpg
Resolving static.sites.yip.com (static.sites.yip.com)... 208.93.105.36
Connecting to static.sites.yip.com (static.sites.yip.com)|208.93.105.36|:80... connected.
HTTP request sent, awaiting response... 200 OK
Length: 162462 (159K) [image/jpeg]
Saving to: '1373218-eagle.jpg'

```

```

1373218-eagle.jpg 100%[=====>] 158.65K  --.-KB/s   in 0.008s

```

```

2018-07-08 16:26:18 (18.5 MB/s) - '1373218-eagle.jpg' saved [162462/162462]

```

a bird is standing on a rock in the wild



4.2.6. "a glass of wine sitting on a table next to a glass of wine"

In [154]:

```

! wget https://static.shoplightspeed.com/shops/610486/files/007106580/600x600x2/set-of-4-red-wine-
glasses-by-mann.jpg

```

```
apply_model_to_image_raw_bytes(open("set-of-4-red-wine-glasses-by-mann.jpg", "rb").read())
```

```
--2018-07-08 16:30:39--
https://static.shoplightspeed.com/shops/610486/files/007106580/600x600x2/set-of-4-red-wine-
glasses-by-mann.jpg
Resolving static.shoplightspeed.com (static.shoplightspeed.com)... 34.234.63.112
Connecting to static.shoplightspeed.com (static.shoplightspeed.com)|34.234.63.112|:443...
connected.
HTTP request sent, awaiting response... 200 OK
Length: 27804 (27K) [image/jpeg]
Saving to: 'set-of-4-red-wine-glasses-by-mann.jpg.1'

set-of-4-red-wine-g 100%[=====>] 27.15K --.-KB/s in 0s

2018-07-08 16:30:39 (144 MB/s) - 'set-of-4-red-wine-glasses-by-mann.jpg.1' saved [27804/27804]

a glass of wine sitting on a table next to a glass of wine
```



4.2.7. "a train that is sitting on the tracks"

In [159]:

```
! wget https://static.ladepeche.fr/content/media/image/large/2018/02/03/201802031781-full.jpg
apply_model_to_image_raw_bytes(open("201802031781-full.jpg", "rb").read())
```

```
--2018-07-08 16:33:36--
https://static.ladepeche.fr/content/media/image/large/2018/02/03/201802031781-full.jpg
Resolving static.ladepeche.fr (static.ladepeche.fr)... 212.95.70.227
Connecting to static.ladepeche.fr (static.ladepeche.fr)|212.95.70.227|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 64514 (63K) [image/jpeg]
Saving to: '201802031781-full.jpg.2'
```

```
201802031781-full.j 100%[=====>] 63.00K 341KB/s in 0.2s

2018-07-08 16:33:37 (341 KB/s) - '201802031781-full.jpg.2' saved [64514/64514]

a train that is sitting on the tracks
```





4.2.8. "a person on a surfboard riding a wave"

In [163]:

```
! wget https://www.disruptsports.com/wp-content/uploads/2016/01/688415-south-west-monster-surf.jpg  
apply_model_to_image_raw_bytes(open("688415-south-west-monster-surf.jpg", "rb").read())
```

```
--2018-07-08 16:36:46-- https://www.disruptsports.com/wp-content/uploads/2016/01/688415-south-west-monster-surf.jpg  
Resolving www.disruptsports.com (www.disruptsports.com)... 104.28.13.134, 104.28.12.134, 2400:cb00:2048:1::681c:c86, ...  
Connecting to www.disruptsports.com (www.disruptsports.com)|104.28.13.134|:443... connected.  
HTTP request sent, awaiting response... 200 OK  
Length: 35334 (35K) [image/jpeg]  
Saving to: '688415-south-west-monster-surf.jpg'
```

```
688415-south-west-m 100%[=====>] 34.51K --.-KB/s in 0s
```

```
2018-07-08 16:36:48 (97.6 MB/s) - '688415-south-west-monster-surf.jpg' saved [35334/35334]
```

a person on a surfboard riding a wave



4.2.9. "a baseball player swinging a bat at a ball"

In [178]:

```
! wget https://s.marketwatch.com/public/resources/images/MW-DU117_david_ZH_20150913112300.jpg  
apply_model_to_image_raw_bytes(open("MW-DU117_david_ZH_20150913112300.jpg", "rb").read())
```

```
--2018-07-08 16:46:56-- https://s.marketwatch.com/public/resources/images/MW-DU117_david_ZH_20150913112300.jpg  
Resolving s.marketwatch.com (s.marketwatch.com)... 23.46.56.204, 2600:1408:20:48e::7e5, 2600:1408:20:490::7e5  
Connecting to s.marketwatch.com (s.marketwatch.com)|23.46.56.204|:443... connected.  
HTTP request sent, awaiting response... 200 OK  
Length: 159463 (156K) [image/jpeg]  
Saving to: 'MW-DU117_david_ZH_20150913112300.jpg.1'
```

```
MW-DU117_david_ZH_ 100%[=====>] 155.73K --.-KB/s in 0.002s
```

```
2018-07-08 16:46:56 (72.1 MB/s) - 'MW-DU117_david_ZH_20150913112300.jpg.1' saved [159463/159463]
```

a baseball player swinging a bat at a ball





4.2.10. "a tennis player is playing tennis on a court"

In [179]:

```
! wget https://cdn.cnn.com/cnnnext/dam/assets/180702140425-roger-federer-wimbledon-statistics-exlarge-169.jpg
apply_model_to_image_raw_bytes(open("180702140425-roger-federer-wimbledon-statistics-exlarge-169.jpg", "rb").read())
```

```
--2018-07-08 16:50:28-- https://cdn.cnn.com/cnnnext/dam/assets/180702140425-roger-federer-wimbledon-statistics-exlarge-169.jpg
Resolving cdn.cnn.com (cdn.cnn.com)... 104.96.237.38, 2600:1408:2000:18a::3134, 2600:1408:2000:1a3::3134
Connecting to cdn.cnn.com (cdn.cnn.com)|104.96.237.38|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 57223 (56K) [image/jpeg]
Saving to: '180702140425-roger-federer-wimbledon-statistics-exlarge-169.jpg'
```

```
180702140425-roger- 100%[=====>] 55.88K --.-KB/s in 0s
```

```
2018-07-08 16:50:28 (220 MB/s) - '180702140425-roger-federer-wimbledon-statistics-exlarge-169.jpg' saved [57223/57223]
```

a tennis player is playing tennis on a court



4.3. Examples where the models fails (spectacularly) !

In [117]:

```
! wget https://www.chathamhouse.org/sites/default/files/styles/main_image_800x460/public/field/field_image_n/Lewis_4.jpg
apply_model_to_image_raw_bytes(open("Lewis_4.jpg", "rb").read())
```

```
--2018-07-08 15:41:30--
https://www.chathamhouse.org/sites/default/files/styles/main_image_800x460/public/field/field_image_n/Lewis_4.jpg
Resolving www.chathamhouse.org (www.chathamhouse.org)... 52.17.176.171, 52.49.159.196
Connecting to www.chathamhouse.org (www.chathamhouse.org)|52.17.176.171|:443... connected.
HTTP request sent, awaiting response... 200 OK
```

Length: 41836 (41K) [image/jpeg]
Saving to: 'Lewis_4.jpg.2'

Lewis_4.jpg.2 100%[=====>] 40.86K --.-KB/s in 0s

2018-07-08 15:41:31 (252 MB/s) - 'Lewis_4.jpg.2' saved [41836/41836]

a black and white photo of a black and white photo of a steam engine



4.3.2. "a man sitting on a bench with a surfboard"

In [97]:

```
! wget  
http://scd.rfi.fr/sites/filesrfi/imagecache/rfi_16x9_1024_578/sites/images.rfi.fr/files/aef_image/C  
AS2004050505268_0.jpg  
apply_model_to_image_raw_bytes(open("000_WAS2004050505268_0.jpg", "rb").read())
```

```
--2018-07-08 15:25:26--  
http://scd.rfi.fr/sites/filesrfi/imagecache/rfi_16x9_1024_578/sites/images.rfi.fr/files/aef_image/C  
AS2004050505268_0.jpg  
Resolving scd.rfi.fr (scd.rfi.fr)... 104.96.220.176, 104.96.220.163  
Connecting to scd.rfi.fr (scd.rfi.fr)|104.96.220.176|:80... connected.  
HTTP request sent, awaiting response... 200 OK  
Length: 78817 (77K) [image/jpeg]  
Saving to: '000_WAS2004050505268_0.jpg.4'
```

000_WAS2004050505268 100%[=====>] 76.97K --.-KB/s in 0s

2018-07-08 15:25:26 (210 MB/s) - '000_WAS2004050505268_0.jpg.4' saved [78817/78817]

a man sitting on a bench with a surfboard



4.3.3. "a group of people standing around a large body of water"

In [161]:

```
! wget https://upload.wikimedia.org/wikipedia/commons/7/77/My_Lai_massacre.jpg  
apply_model_to_image_raw_bytes(open("My_Lai_massacre.jpg", "rb").read())
```



```
apply_model_to_image_raw_bytes(open('My_Lai_massacre.jpg', 'rb').read())
```

```
--2018-07-08 16:35:38-- https://upload.wikimedia.org/wikipedia/commons/7/77/My_Lai_massacre.jpg
Resolving upload.wikimedia.org (upload.wikimedia.org)... 208.80.154.240, 2620:0:861:ed1a::2:b
Connecting to upload.wikimedia.org (upload.wikimedia.org)|208.80.154.240|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 310083 (303K) [image/jpeg]
Saving to: 'My_Lai_massacre.jpg'
```

```
My_Lai_massacre.jpg 100%[=====>] 302.82K --.-KB/s in 0.004s
```

```
2018-07-08 16:35:38 (67.5 MB/s) - 'My_Lai_massacre.jpg' saved [310083/310083]
```

a group of people standing around a large body of water



4.3.4. "a dog is riding a wave in the ocean"

In [93]:

```
! wget https://i.ytimg.com/vi/Qzxy3GtSzt0/maxresdefault.jpg
apply_model_to_image_raw_bytes(open('maxresdefault.jpg', 'rb').read())
```

```
--2018-07-08 15:21:39-- https://i.ytimg.com/vi/Qzxy3GtSzt0/maxresdefault.jpg
Resolving i.ytimg.com (i.ytimg.com)... 172.217.7.246, 172.217.15.86, 172.217.15.118, ...
Connecting to i.ytimg.com (i.ytimg.com)|172.217.7.246|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 115212 (113K) [image/jpeg]
Saving to: 'maxresdefault.jpg'
```

```
maxresdefault.jpg 100%[=====>] 112.51K --.-KB/s in 0.002s
```

```
2018-07-08 15:21:39 (60.1 MB/s) - 'maxresdefault.jpg' saved [115212/115212]
```

a dog is riding a wave in the ocean



4.3.5. "a man and woman are sitting on a couch"

In [89]:

```
! wget
https://mediadc.brightspotcdn.com/dims4/default/7083d2a/2147483647/strip/true/crop/2290x1322+0+0/re
/2290x1322!/quality/90/?
url=https%3A%2F%2Fmediadc.brightspotcdn.com%2F23%2F55%2F4422262e1661d3ac22e55f1f217b%2F87ec8573ead2
eea6b22fa234be28.jpg
apply_model_to_image_raw_bytes(open("index.html?url=https%3A%2F%2Fmediadc.brightspotcdn.com%2F23%2
F55%2F4422262e1661d3ac22e55f1f217b%2F87ec8573ead2af3aeea6b22fa234be28.jpg", "rb").read())
```

```
--2018-07-08 15:10:35--
https://mediadc.brightspotcdn.com/dims4/default/7083d2a/2147483647/strip/true/crop/2290x1322+0+0/re
/2290x1322!/quality/90/?
url=https%3A%2F%2Fmediadc.brightspotcdn.com%2F23%2F55%2F4422262e1661d3ac22e55f1f217b%2F87ec8573ead2
eea6b22fa234be28.jpg
Resolving mediadc.brightspotcdn.com (mediadc.brightspotcdn.com)... 52.84.122.146, 52.84.122.232, 5
2.84.122.88, ...
Connecting to mediadc.brightspotcdn.com (mediadc.brightspotcdn.com)|52.84.122.146|:443...
connected.
HTTP request sent, awaiting response... 200 OK
Length: 555704 (543K) [image/jpeg]
Saving to: 'index.html?
url=https%3A%2F%2Fmediadc.brightspotcdn.com%2F23%2F55%2F4422262e1661d3ac22e55f1f217b%2F87ec8573ead2
eea6b22fa234be28.jpg.2'
```

```
index.html?url=http 100%[=====>] 542.68K --.-KB/s in 0.008s
```

```
2018-07-08 15:10:35 (64.4 MB/s) - 'index.html?
url=https%3A%2F%2Fmediadc.brightspotcdn.com%2F23%2F55%2F4422262e1661d3ac22e55f1f217b%2F87ec8573ead2
eea6b22fa234be28.jpg.2' saved [555704/555704]
```

a man and woman are sitting on a couch



4.3.6. "a plate of food with a sandwich and a salad"

In [118]:

```
! wget https://media.blueapron.com/recipes/2121/c_main_dish_images/1490637097-4-0002-
2195/403_2PRE07-steak-frites-18311_WEB_Center_high_feature.jpg
apply_model_to_image_raw_bytes(open("403_2PRE07-steak-frites-18311_WEB_Center_high_feature.jpg", "
rb").read())
```

```
--2018-07-08 15:41:37-- https://media.blueapron.com/recipes/2121/c_main_dish_images/1490637097-4-
0002-2195/403_2PRE07-steak-frites-18311_WEB_Center_high_feature.jpg
Resolving media.blueapron.com (media.blueapron.com)... 151.101.34.133
Connecting to media.blueapron.com (media.blueapron.com)|151.101.34.133|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 142683 (139K) [image/jpeg]
Saving to: '403_2PRE07-steak-frites-18311_WEB_Center_high_feature.jpg.3'
```

```
403_2PRE07-steak-fr 100%[=====>] 139.34K --.-KB/s in 0.005s
```

```
2018-07-08 15:41:37 (25.9 MB/s) - '403_2PRE07-steak-frites-18311_WEB_Center_high_feature.jpg.3' sa
ved [142683/142683]
```

a plate of food with a sandwich and a salad



4.3.7. "a train is coming down the tracks in a field"

In [121]:

```
! wget https://s.abcnews.com/images/US/branch-davidian-fire-01-gty-jc-180103_16x9_992.jpg
apply_model_to_image_raw_bytes(open("branch-davidian-fire-01-gty-jc-180103_16x9_992.jpg", "rb").read())
```

```
--2018-07-08 15:48:29-- https://s.abcnews.com/images/US/branch-davidian-fire-01-gty-jc-180103_16x9_992.jpg
Resolving s.abcnews.com (s.abcnews.com)... 23.72.80.9
```

```
Connecting to s.abcnews.com (s.abcnews.com)|23.72.80.9|:443... connected.
```

```
HTTP request sent, awaiting response... 200 OK
```

```
Length: 77688 (76K) [image/jpeg]
```

```
Saving to: 'branch-davidian-fire-01-gty-jc-180103_16x9_992.jpg.1'
```

```
branch-davidian-fir 100%[=====>] 75.87K --.-KB/s in 0.04s
```

```
2018-07-08 15:48:29 (1.89 MB/s) - 'branch-davidian-fire-01-gty-jc-180103_16x9_992.jpg.1' saved [77688/77688]
```

a train is coming down the tracks in a field



4.3.8. "a baseball player holding a baseball bat on a field"

In [125]:

```
! wget https://abrilveja.files.wordpress.com/2017/12/pixacca7ao-paris-maiol968.jpg
apply_model_to_image_raw_bytes(open("pixacca7ao-paris-maiol968.jpg", "rb").read())
```

```
--2018-07-08 15:55:32-- https://abrilveja.files.wordpress.com/2017/12/pixacca7ao-paris-maiol968.jpg
Resolving abrilveja.files.wordpress.com (abrilveja.files.wordpress.com)... 192.0.72.2
```

```
Connecting to abrilveja.files.wordpress.com (abrilveja.files.wordpress.com)|192.0.72.2|:443... connected.
```

```

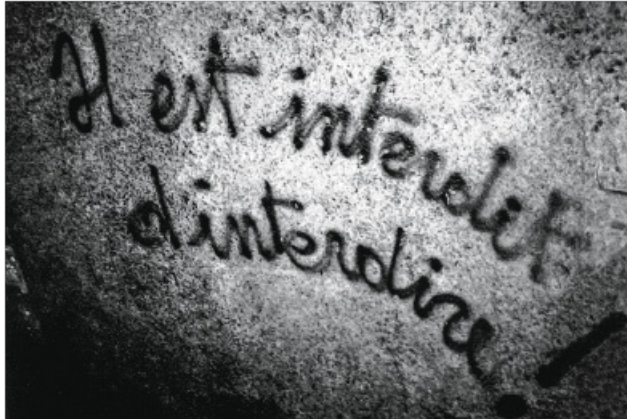
#####.
HTTP request sent, awaiting response... 200 OK
Length: 1161877 (1.1M) [image/jpeg]
Saving to: 'pixacca7ao-paris-maiol1968.jpg'

pixacca7ao-paris-m 100%[=====>] 1.11M --.-KB/s in 0.01s

2018-07-08 15:55:32 (105 MB/s) - 'pixacca7ao-paris-maiol1968.jpg' saved [1161877/1161877]

a baseball player holding a baseball bat on a field

```



4.3.9. "a man in a hat and tie standing next to a skateboard"

In [136]:

```

! wget https://www.culturecreature.com/wp-content/uploads/2016/08/nine-inch-nails-woodstock-94-2-650x418.jpg
apply_model_to_image_raw_bytes(open("nine-inch-nails-woodstock-94-2-650x418.jpg", "rb").read())

--2018-07-08 16:10:46-- https://www.culturecreature.com/wp-content/uploads/2016/08/nine-inch-nails-woodstock-94-2-650x418.jpg
Resolving www.culturecreature.com (www.culturecreature.com)... 132.148.208.216
Connecting to www.culturecreature.com (www.culturecreature.com)|132.148.208.216|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 55197 (54K) [image/jpeg]
Saving to: 'nine-inch-nails-woodstock-94-2-650x418.jpg'

nine-inch-nails-woo 100%[=====>] 53.90K --.-KB/s in 0.08s

2018-07-08 16:10:46 (637 KB/s) - 'nine-inch-nails-woodstock-94-2-650x418.jpg' saved [55197/55197]

a man in a hat and tie standing next to a skateboard

```



4.3.10. "a man sitting on a bench with a cell phone"

In [130]:

```
! wget https://vignette.wikia.nocookie.net/cnc/images/7/78/Yuri_and_Stalin.png/revision/latest?cb=20120226185151
apply_model_to_image_raw_bytes(open('latest?cb=20120226185151', "rb").read())
```

--2018-07-08 16:04:35--

https://vignette.wikia.nocookie.net/cnc/images/7/78/Yuri_and_Stalin.png/revision/latest?cb=20120226185151

Resolving vignette.wikia.nocookie.net (vignette.wikia.nocookie.net)... 74.120.184.194, 74.120.184.204

Connecting to vignette.wikia.nocookie.net (vignette.wikia.nocookie.net)|74.120.184.194|:443... connected.

HTTP request sent, awaiting response... 200 OK

Length: 129014 (126K) [image/png]

Saving to: 'latest?cb=20120226185151.1'

latest?cb=201202261 100%[=====>] 125.99K --.-KB/s in 0.002s

2018-07-08 16:04:36 (80.2 MB/s) - 'latest?cb=20120226185151.1' saved [129014/129014]

a man sitting on a bench with a cell phone



That's it!

Congratulations, you've trained your image captioning model and now can produce captions for any picture from the Internet!