```
from pycocotools.coco import COCO
         dataDir = 'coco' # cocoAPI
         dataType = 'val2017' # 2017 challange
         instances_annFile = os.path.join(dataDir, 'annotations\instances_{}.json'.format(dataType))
         coco = COCO(instances_annFile)
         captions_annFile = os.path.join(dataDir, 'annotations\captions_{{}.json'.format(dataType))
         coco_caps = COCO(captions_annFile)
         ids = list(coco.anns.keys()) #image ids
         loading annotations into memory...
         Done (t=0.85s)
         creating index...
         index created!
         loading annotations into memory...
         Done (t=0.04s)
         creating index...
         index created!
In [85]: import numpy as np
         import skimage.io as io
         import matplotlib.pyplot as plt
         %matplotlib inline
         ann_id = np.random.choice(ids)
         img_id = coco.anns[ann_id]['image_id']
         img = coco.loadImgs(img_id)[0]
         url = img['coco_url']
         # print(url)
         I = io.imread(url)
         plt.axis('off')
         plt.imshow(I)
         plt.show()
         # load and display captions
         annIds = coco_caps.getAnnIds(imgIds=img['id'])
         anns = coco_caps.loadAnns(annIds)
         coco_caps.showAnns(anns)
```



In [84]: import os

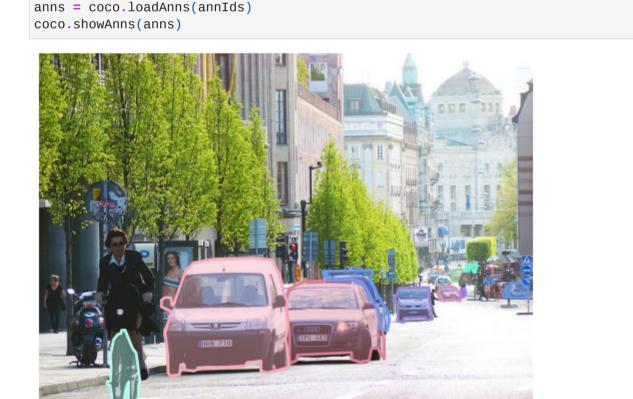
import sys

sys.path.append('PythonAPI')

a person riding on a bicycle on the street in front of some cars
The cars are travelling behind the guy on the bicycle
a woman rides a bike in front of some cars
A woman on a bike rides on the street in front of cars.
A woman is riding her bike down the street in front of traffic.

In [94]: catIds = coco.getCatIds(catNms = ['car', 'bicycle'])
 imgIds = coco.getImgIds(catIds=catIds)

In [95]: plt.imshow(I)
 plt.axis('off')



annIds = coco.getAnnIds(imgIds=img['id'], catIds=catIds, iscrowd=None)

In [88]: catIds = coco.getCatIds(catNms = ['person'])
 imgIds = coco.getImgIds(catIds=catIds)

plt.imshow(I)
plt.axis('off')
annIds = coco.getAnnIds(imgIds=img['id'], catIds=catIds, iscrowd=None)
anns = coco.loadAnns(annIds)



In [90]: annFile = '{}/annotations/person_keypoints_{}.json'.format(dataDir,dataType)

coco_kps=COCO(annFile)
loading annotations into memory...
Done (t=0.26s)
creating index...

index created!

coco.showAnns(anns)

In [91]: plt.imshow(I)
 plt.axis('off')
 ax = plt.gca()
 annIds = coco_kps.getAnnIds(imgIds=img['id'], catIds=catIds, iscrowd=None)
 anns = coco_kps.loadAnns(annIds)
 coco_kps.showAnns(anns)

