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In [2]: from absl import logging

import matplotlib.pyplot as plt
import numpy as np
from PIL import Image, ImageOps
from scipy.spatial import cKDTree
from skimage.feature import plot_matches
from skimage.measure import ransac
from skimage.transform import AffineTransform
from six import BytesIO

import tensorflow as tf

import tensorflow_hub as hub
from six.moves.urllib.request import urlopen
```

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In [3]: delf = hub.load('https://tfhub.dev/google/delf/1').signatures['default']
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In [4]: def delf_work(path1, path2):
    image1 = Image.open(path1)
    image1 = ImageOps.fit(image1, (96, 96), Image.ANTIALIAS)
    image2 = Image.open(path2)
    image2 = ImageOps.fit(image2, (96, 96), Image.ANTIALIAS)
    result1 = run_delf(image1)
    result2 = run_delf(image2)

    if (type(result1) is int or type(result2) is int) and (result1==0 or
result2 == 0):
        return 0

    distance_threshold = 0.8

    # Read features.
    num_features_1 = result1['locations'].shape[0]
    #print("Loaded image 1's %d features" % num_features_1)

    num_features_2 = result2['locations'].shape[0]
    #print("Loaded image 2's %d features" % num_features_2)

    # Find nearest-neighbor matches using a KD tree.
    dl_tree = cKDTree(result1['descriptors'])
    _, indices = dl_tree.query(
        result2['descriptors'],
        distance_upper_bound=distance_threshold)

    # Select feature locations for putative matches.
    locations_2_to_use = np.array([
        result2['locations'][i,]
        for i in range(num_features_2)
        if indices[i] != num_features_1
    ])
    locations_1_to_use = np.array([
        result1['locations'][indices[i],]
        for i in range(num_features_2)
        if indices[i] != num_features_1
    ])

    # Perform geometric verification using RANSAC.
    try:
        _, inliers = ransac(
            (locations_1_to_use, locations_2_to_use),
            AffineTransform,
            min_samples=3,
            residual_threshold=20,
            max_trials=1000)
    except:
        inliers = [0]

    if inliers is None:
        print('Found 0 inliers')
        return 0
    print('Found %d inliers' % sum(inliers))
    return sum(inliers)

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In [5]: def local_feature(path):
x = 0
v=[]
result = pd.read_csv(path)
for i in result['id']:
    a = result.loc[result['id'] == i, "landmarks"]
    c = result.loc[result['id'] == i, "confidence"]
    a = a.values
    c = c.values
    #print(a,c)
    if c<0.4:
        p2 = '/content/sample_data/dataset/dataset3/train_images_model/'+
str(a[0])
        r = os.listdir(p2)

        if(len(r)>2):
            s=0
            for j in range(2):
                s = max(s,delf_work('/content/sample_data/test_set/'+str
(i)+'.jpg', p2+'/'+str(r[j]) ))
            avg = s
        else:
            s=0
            for j in range(len(r)):
                s = max(s,delf_work('/content/sample_data/test_set/'+str
(i)+'.jpg', p2+'/'+str(r[j]) ))
            avg = s

        if avg < 3:
            result.loc[result.id == i, "confidence"] = 0
        elif avg >= 10:
            result.loc[result.id == i, "confidence"] = 0.6
        elif c>0.4 and c<0.6:
            p2 = '/content/sample_data/dataset/dataset3/train_images_model/'+
str(a[0])
            r = os.listdir(p2)

            if(len(r)>2):
                s=0
                for j in range(2):
                    s = max(s,delf_work('/content/sample_data/test_set/'+str
(i)+'.jpg', p2+'/'+str(r[j]) ))
                avg = s
            else:
                s=0
                for j in range(len(r)):
                    s = max(s,delf_work('/content/sample_data/test_set/'+str
(i)+'.jpg', p2+'/'+str(r[j]) ))
                avg = s
            elif c==1:
                p2 = '/content/sample_data/dataset/dataset3/train_images_model/'+
str(a[0])
                r = os.listdir(p2)
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        if(len(r)>5):
            s=0
            for j in range(5):
                s = max(s,delf_work('/content/sample_data/test_set/'+str
(i)+'.'.jpg', p2+'/'+str(r[j]) ))
                avg = s
            else:
                s=0
                for j in range(len(r)):
                    s = max(s,delf_work('/content/sample_data/test_set/'+str
(i)+'.'.jpg', p2+'/'+str(r[j]) ))
                    avg = s

        if avg < 3:
            result.loc[result.id == i, "confidence"] = 0
            #v.append([x,avg,c])
            print(x)
            x+=1

result.to_csv('delf_test_best.csv')
#return v
#print(GAP_metric_2(result))
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In [ ]: local_feature("/content/finalensemble.csv")
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Streaming output truncated to the last 5000 lines.

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In [6]: # This call calculates the Global Average Precision Metric
#
import pandas as pd
def GAP_metric(path):
    result=pd.read_csv(path)
    test=pd.read_csv("/content/drive/My Drive/ADM/test_sample3.csv")
    result=result.sort_values(by='confidence', ascending=False)
    M=0
    true=0
    total=0
    s=0
    relevance=0
    for i in result['id']:
        total+=1
        a=result.loc[result['id'] == i, "landmarks"]
        b=a.values
        #if i in test['id']:
        if i in test.id.values:
            M+=1
            c=test.loc[test['id'] == i, "landmark_id"]
            d=c.values
            if b[0]==d[0]:
                true+=1
                relevance=1
            s+=(true/total)*relevance
            relevance=0
    print(M,s,total,true)
    print(s/M)
    return s/M
GAP_metric("/content/delf_test_best.csv")

5305 2179.42304373032 13067 4921
0.4108243249256022
```

Out[6]: 0.4108243249256022

In []: