第十二周作业

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# 计算矩阵的转秩

import numpy as np

from numpy.linalg import inv

A = np.array([[1,0,5,5], [2,3,2,3], [4,1,1,7]])

B = np.array([1,2,3])

a = inv(A)

b = B.transpose()

x = np.matmul(a,b)

print(x)

结果：

# 手绘

from PIL import Image

import numpy as np

vec\_el = np.pi/2.2

vec\_az = np.pi/4.

depth = 10.

im = Image.open("d:\\何颖岚\\zipai.jpg").convert('L')

a = np.asarray(im).astype('float')

grad = np.gradient(a)

grad\_x, grad\_y = grad

grad\_x = grad\_x\*depth/100.

gard\_y = grad\_y\*depth/100.

dx = np.cos(vec\_el)\*np.cos(vec\_az)

dy = np.cos(vec\_el)\*np.sin(vec\_az)

dz =np.sin(vec\_el)

A = np.sqrt(grad\_x\*\*2 + grad\_y\*\*2 + 1.)

uni\_y = grad\_y/A

uni\_x = grad\_x/A

uni\_z =1./A

a2 = 255\*(dx\*uni\_x + dy\*uni\_y + dz\*uni\_z)

a2 = a2.clip(0,255)

im2 = Image.fromarray(a2.astype('uint8'))

im2.save("d:\\何颖岚[\\zipaiHanDraw.jpg](file:///\\zipaiHanDraw.jpg)")

结果：

