

Moment, Hu Invariant Moment

In []:



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import cv2
import numpy as np
import imutils

src = cv2.imread('./data/momentTest.jpg')
gray = cv2.cvtColor(src, cv2.COLOR_BGR2GRAY)
ret, bimage = cv2.threshold(gray, 128, 255, cv2.THRESH_BINARY)

mode = cv2.RETR_EXTERNAL
method = cv2.CHAIN_APPROX_SIMPLE
contours, _ = cv2.findContours(bimage, mode, method)

dst = src.copy()
cnt = contours[0]
cv2.drawContours(dst, [cnt], 0, (255,0,0), 3)
cv2.imshow('cnt', dst)
cv2.waitKey()
cv2.destroyAllWindows()

M = cv2.moments(cnt)
hu = cv2.HuMoments(M)
print('hu.shape=', hu.shape)
print('hu=', hu)

angle = 45.0
scale = 0.2
cx = M['m10']/M['m00']
cy = M['m01']/M['m00']
center = (cx, cy)
t = (20, 30)

A = cv2.getRotationMatrix2D( center, angle, scale )
A[:, 2] += t # translation
cnt2 = cv2.transform(cnt, A)
cv2.drawContours(dst, [cnt2], 0, (0,255,0), 3)
cv2.imshow('dst', dst)
cv2.waitKey()
cv2.destroyAllWindows()

M2 = cv2.moments(cnt2)
hu2 = cv2.HuMoments(M2)
print('hu2.shape=', hu2.shape)

diffSum = np.sum(cv2.absdiff(hu, hu2))
print('diffSum=', diffSum)
```

In []:



