

17.Rectangular circle drawing

1. Drawing of rectangle

`rectangle (img, pt1, pt2, color, thickness=None, lineType=None, shift=None)`

Parameter Description:

`img`: canvas or carrier image.

`pt1, pt2`: required parameters. The vertices of the rectangle represent the vertex and the diagonal vertex respectively, that is, the upper left corner and the lower right corner of the rectangle (these two vertices can determine a unique rectangle)

`color`: required parameter. Used to set the color of the rectangle

`thickness`: optional parameter. Used to set the width of the rectangle side. When the value is a negative number, it means the rectangle is filled.

`lineType`: optional parameter. Used to set the type of line segment, optional 8 (8 adjacent connecting lines - default), 4 (4 adjacent connecting lines) and `cv2.LINE_AA` is anti-aliasing

2. Drawing of circles

`cv2.circle(img, center, radius, color[,thickness[,lineType]])`

Parameter Description:

`img`: canvas or carrier image

`center`: is the coordinate of the center of the circle, format: (50,50)

`radius`: radius

`color`: color

`thickness`: Line thickness. Defaults to 1. If -1, fill solid.

`lineType`: line type. The default is 8, connection type. The following table explains

Parameter	Description
<code>cv2.FILLED</code>	filling
<code>cv2.LINE_4</code>	4 connection types
<code>cv2.LINE_8</code>	8 connection types
<code>cv2.LINE_AA</code>	Anti-aliasing, this parameter will make the lines smoother

3. Draw ellipse

`cv2.ellipse(img, center, axes, angle, StartAngle, endAngle, color[,thickness[,lineType]])`

`center`: center point of the ellipse, (x, x)

`axes`: refers to the short radius and long radius, (x, x)

`angle`: refers to the angle of counterclockwise rotation

StartAngle: The angle of the starting angle of the arc

endAngle: the angle of the arc's end angle

For img and color, please refer to the description of the circle.

#The fifth parameter refers to the angle at which the drawing starts counterclockwise, and the sixth parameter refers to the angle at which the drawing ends counterclockwise.

If the 456 parameter is added with a sign, it represents the opposite direction, that is, clockwise.

4. Draw polygons

cv2.polylines(img,[pts],isClosed, color[,thickness[,lineType]])

pts: vertices of the polygon

isClosed: Whether it is closed. (True/False)

Other parameters refer to the drawing parameters of the circle.

Code path: muto/Samples/OpenCV/03_Image processing and text drawing/05Draw a rectangular circle.ipynb

```
import cv2
import numpy as np
newImageInfo = (500,500,3)
dst = np.zeros(newImageInfo,np.uint8)
# 1 2 upper left corner 3 lower right corner 4 5 fill -1 >0 line w
cv2.rectangle(dst,(350,100),(400,270),(0,255,0),3)
# 2 center 3 r
cv2.circle(dst,(250,250),(50),(255,0,0),2)
# 2 center 3 axis 4 angle 5 begin 6 end 7
cv2.ellipse(dst, (256,256), (150,100), 0, 0, 180, (0,255,255), -1)
points = np.array([[150,50], [140,140], [200,170], [250,250], [150,50]],
np.int32)
#print(points.shape)
points = points.reshape((-1,1,2))
#print(points.shape)
cv2.polylines(dst,[points],True,(255,255,0))
# cv2.imshow('dst',dst)
# cv2.waitKey(0)
```

```
import matplotlib.pyplot as plt
dst = cv2.cvtColor(dst, cv2.COLOR_BGR2RGB)
plt.imshow(dst)
plt.show()
```

