

1.3.5 Drawing rectangle circle

1. Drawing rectangle

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

Parameter Description

- img: Canvas or carrier image.
- pt1, pt2: required parameters. Represents the vertices and diagonal vertices, that is the upper left corner and lower right corner of the rectangle.
- color: required parameters, be used to set color of rectangle.
- thickness: optional parameter, be used to set the width of the rectangle side, when the value is negative, it means to fill the rectangle.
- lineType: optional parameter, be used to set the type of line segment, 8 (8 adjacent connection line-default), 4 (4 adjacent connection line) and cv2.LINE_AA are anti-aliased.

2. Drawing circle

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

Parameter Description

- img: canvas or carrier image
- center: the coordinates of the center of the circle, the format: (50,50)
- radius: radius
- color: color
- Thickness: be used to set the width of the circle side, when the value is -1, it means to fill the circle.
- lineType: type of line segment. The default is 8, the connection type description is shown in the table below.

Parameter	Description
cv2.FILLED	fill
cv2.LINE_4	4 Connection Type
cv2.LINE_8	8 Connection Type
cv2.LINE_AA	Anti-aliasing, this parameter will make the line smoother

3. Draw ellipse

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

Parameter Description

- center: Center point of ellipse(x, x)
- axes: hort radius and long radius, (x, x)
- angle: the angle of counterclockwise rotation
- StartAngle: The angle of the starting angle of the arc
- endAngle: The angle of the end angle of the arc

- `Img, color`: canvas or carrier image and color.
- # The fifth parameter refers to the angle at which drawing starts counterclockwise, and the sixth parameter refers to the angle at which drawing ends counterclockwise
- # If the fourth or fifth parameters are added with symbols, the opposite direction is indicated, that is, the clockwise direction.

4. Draw polygon

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

- `pts`: Vertex of polygon
- `isClosed`: Whether closed or not. (True/False)
- Other parameters refer to the parameters of drawing circle

Code path:

/home/pi/Yahboom_Project/Raspbot/1.OpenCV_course/03IP_Draw_text_line_segments/05_Drawing_rectangle_circle.ipynb

```
import cv2
import numpy as np
newImgInfo = (500,500,3)
dst = np.zeros(newImgInfo,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()
```

After running the following program, a picture will be displayed in the jupyterLab control interface, as shown below.

