Lesson 5 Image Drawing

Drawing function in OpenCV can be used to draw line, rectangle, circle, etc., and add texts to the designated position of the picture.

1.Draw Line

Function format: **cv2.line(image,pt1,pt2,color,thickness)**

1) Image: Image where the line will be drawn

2) pt1: starting coordinate of the line. The coordinate is represented by a tuples consisting of two values i.e. (X,Y)

3) pt2: ending coordinate of the line. The coordinate is represented by a tuples consisting of two values i.e. (X,Y).

4) Color: The color of the line. And BGR is represented by a tuple. For example, (255, 0, 0) stands for blue.

5) Thickness: The thickness of the line

```
cv2.line(image,(100,100),(100,200),(255,0,0),5)
```

2.Draw Rectangle

Function format: **cv2.rectangle(image,pt1,pt2,color,thickness)**

1) image: The picture where the rectangle will be drawn

2) pt1: vertex coordinate of the rectangle, (x,y), which is represented by a tuple consisting of two numbers.

3) pt2: The diagonal vertex coordinates of pt1 and its format is similar to that of pt1.

4) color: The color of the rectangle. And BGR is represented by a tuple.

For example, (255, 0, 0) stands for blue.

5) thickness: Line thickness. The greater the value, the thicker the line. If the value is negative or cv2.FILLED, a filled rectangle will be drawn.

```
cv2.rectangle(image,(100,100),(200,200),(255,0,0),5)
```

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3. Draw Circle

Function format: **cv2.circle(image,center,radius,color,thickness)**

1) image: The picture where the circle will be drawn

2) center: The center of the circle, (x,y), which is represented by a tuple consisting of two numbers.

3) radius: The radius of the circle.

4) color: The color of the circle. BGR is represented by a tuple. For example, (255, 0, 0) stands for blue.

5) thickness: Line thickness. The greater the value, the thicker the line. If the value is negative or cv2.FILLED, a filled circle will be drawn.

```
cv2.circle(image,(100,100),50,(255,0,0),5)
```

4. Draw Polygon

Function format: **cv2.polylines(image,pts,isClosed,color,thickness)**

1) image: The picture where the polygon will be drawn

2) pts: The vertex coordinate of the polygon. When several quadrangles are required in a picture, the shape of ndarray is (N，4，2).

3) isClosed: Whether the polygon is closed or not, True generally.

4) color: The color of the polygon. BGR is represented by a tuple. For example, (255, 0, 0) stands for blue.

5) thickness: Line thickness. The greater the value, the thicker the line.

```
pts=np.array([[10,10],[100,10],[100,100],[10,100]],np.int32)
pts=pts.reshape((-1,1,2))
cv2.polylines(image,[pts],(255,0,0),5)
```

5. Add Text

Function format: **cv2.putText(image,text,pt,font,fontScale,color)**

1) image: The image where the text is added.

2) text: The text content

3) pt: The coordinate of the upper left corner of the text

4) font: Font of the text

5) fontScale: Font size

6) color: The color of the text. BGR is represented by a tuple. For example, (255, 0, 0) stands for blue.

```
cv2.putText(image,"Hello World!",(100,100),font,5,(255,0,0))
```