

Matplotlib画图

Matplotlib画图

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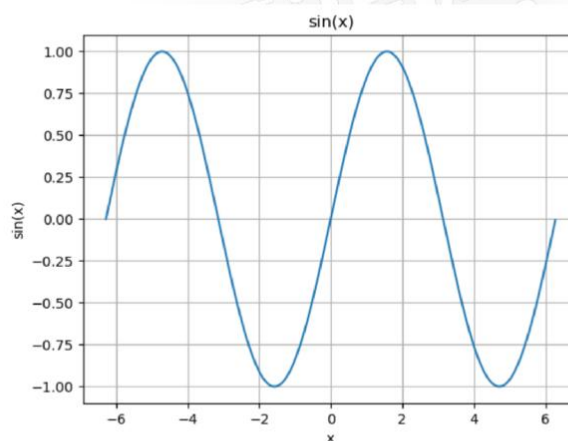
◆ 饼状图

如何安装

```
pip install matplotlib
```

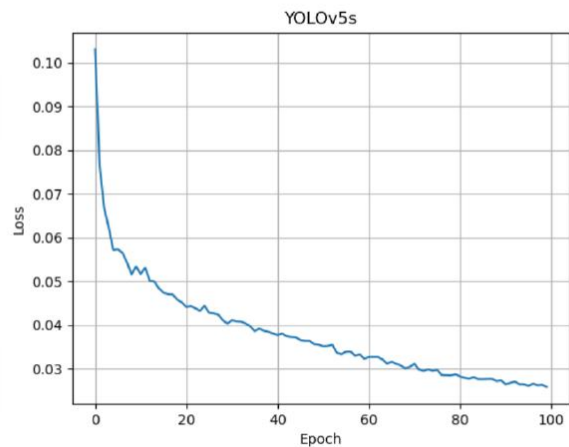
折线图

```
1 import numpy as np
2 import matplotlib.pyplot as plt
3
4 # 创建一个x值的数组，从-2π到2π，步长为0.01
5 x = np.arange(-2 * np.pi, 2 * np.pi, 0.01)
6
7 # 计算每个x值对应的sin(x)值
8 y = np.sin(x)
9
10 # 使用matplotlib来绘制图像
11 plt.figure() # 创建一个新的图像窗口
12 plt.plot(x, y) # 绘制折线图
13 plt.title('sin(x)') # 设置图像的标题
14 plt.xlabel('x') # 设置x轴的标签
15 plt.ylabel('sin(x)') # 设置y轴的标签
16 plt.grid(True) # 显示网格
17 plt.show() # 显示图像
```



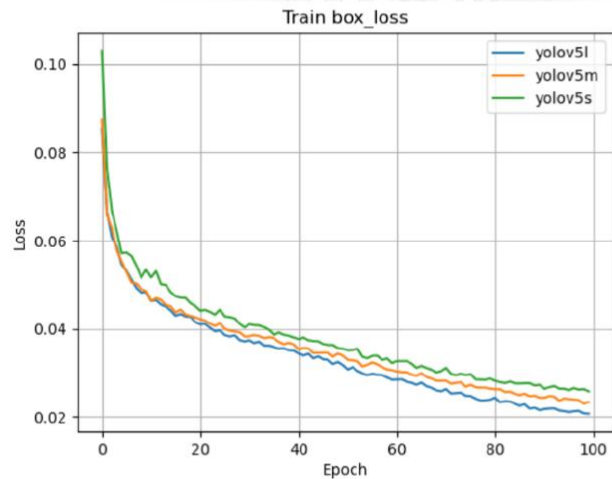
折线图

```
1 import pandas as pd
2 import matplotlib.pyplot as plt
3
4 data_loc = r'resources/yolov5s.csv'
5
6 data = pd.read_csv(data_loc, index_col=0)
7
8 train_bbox_loss = data['train/box_loss']
9
10 x_list = [i for i in range(len(train_bbox_loss))]
11 plt.plot(x_list, train_bbox_loss)
12 plt.xlabel('Epoch')
13 plt.ylabel('Loss')
14 plt.title('YOLOv5s')
15 plt.grid(True)
16 plt.show()
```



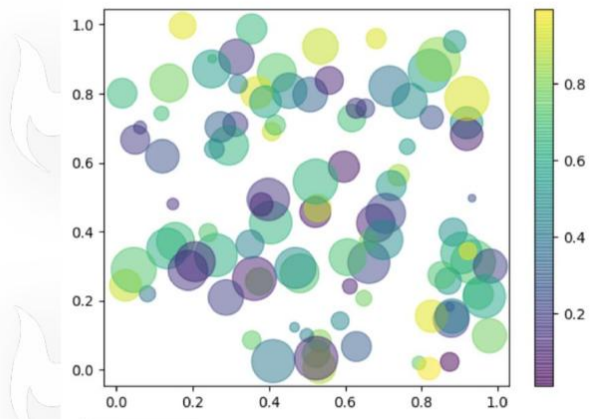
折线图

```
1 import pandas as pd
2 import matplotlib.pyplot as plt
3
4
5 file_1_loc = 'resources/yolov5l.csv'
6 file_2_loc = 'resources/yolov5m.csv'
7 file_3_loc = 'resources/yolov5s.csv'
8
9 file_1 = pd.read_csv(file_1_loc)
10 file_2 = pd.read_csv(file_2_loc)
11 file_3 = pd.read_csv(file_3_loc)
12
13 file_1_train_box_loss = file_1['train/box_loss']
14 file_2_train_box_loss = file_2['train/box_loss']
15 file_3_train_box_loss = file_3['train/box_loss']
16
17 x_list = [i for i in range(len(file_1_train_box_loss))]
18
19 plt.plot(x_list, file_1_train_box_loss)
20 plt.plot(x_list, file_2_train_box_loss)
21 plt.plot(x_list, file_3_train_box_loss)
22
23 plt.xlabel("Epoch")
24 plt.ylabel("Loss")
25 plt.title("Train box_loss")
26 plt.grid()
27
28 plt.legend(['yolov5l', 'yolov5m', 'yolov5s'])
29
30 plt.show()
```



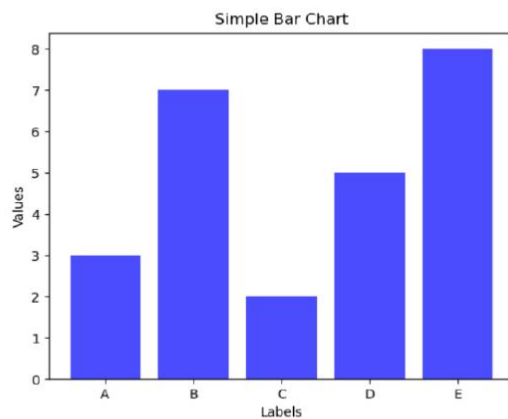
散点图

```
1 import matplotlib.pyplot as plt
2 import numpy as np
3
4 # 创建数据
5 num_points = 100
6 x = np.random.rand(num_points) # x坐标
7 y = np.random.rand(num_points) # y坐标
8 colors = np.random.rand(num_points) # 每个点的颜色
9 sizes = 1000 * np.random.rand(num_points) # 每个点的大小
10 alphas = np.random.rand(num_points) # 每个点的透明度
11
12 # 创建散点图
13 plt.scatter(x, y, c=colors, s=sizes, alpha=0.5, cmap='viridis')
14
15 # 显示颜色条
16 plt.colorbar()
17
18 # 显示图像
19 plt.show()
```



柱状图

```
1 import matplotlib.pyplot as plt
2 import numpy as np
3
4 # 数据
5 labels = ['A', 'B', 'C', 'D', 'E']
6 values = [3, 7, 2, 5, 8]
7
8 # 设置标签的位置
9 x = np.arange(len(labels))
10
11 # 绘制柱状图
12 plt.bar(x, values, color='blue', align='center', alpha=0.7)
13
14 # 设置图表的标题和轴标签
15 plt.title('Simple Bar Chart')
16 plt.xlabel('Labels')
17 plt.ylabel('Values')
18
19 # 设置x轴的标签
20 plt.xticks(x, labels)
21
22 # 显示图像
23 plt.show()
```



饼状图

```
1 import matplotlib.pyplot as plt
2
3 # 数据
4 sizes = [15, 30, 45, 10] # 各部分的大小
5 labels = ['A', 'B', 'C', 'D'] # 各部分的标签
6 colors = ['yellow', 'red', 'green', 'orange'] # 各部分的颜色
7 explode = (0.1, 0, 0, 0) # 突出显示第一个部分
8
9 # 绘制扇形图
10 plt.pie(sizes, explode=explode, labels=labels,
11         colors=colors, autopct='%1.1f%%', shadow=True,
12         startangle=140)
13
14 # 设置为等比例，这样扇形图就是一个圆
15 plt.axis('equal')
16
17 # 显示图像
18 plt.show()
```

