代码如下：

import numpy as np  
import matplotlib.pyplot as plt  
from sklearn.metrics import roc\_auc\_score, roc\_curve  
  
# 数据  
sample = ['1', '2', '3', '4', '5', '6', '7', '8', '9', '10']  
true\_label = np.array([[0, 0, 1], [0, 1, 0], [1, 0, 0], [0, 0, 1], [1, 0, 0], [0, 1, 0], [0, 1, 0], [0, 1, 0], [0, 0, 1], [0, 1, 0]])  
predict\_label = np.array([[0.1, 0.2, 0.7], [0.1, 0.6, 0.3], [0.5, 0.2, 0.3], [0.1, 0.1, 0.8], [0.4, 0.2, 0.4], [0.6, 0.3, 0.1], [0.4, 0.2, 0.4], [0.4, 0.1, 0.5], [0.1, 0.1, 0.8], [0.1, 0.8, 0.1]])  
  
# 类别名称  
labels = ['Class 1', 'Class 2', 'Class 3']  
  
# 绘制每个类别的ROC曲线  
plt.figure(figsize=(8, 8))  
for cl in range(len(labels)):  
 true = true\_label[:, cl]  
 predict = predict\_label[:, cl]  
 fpr, tpr, \_ = roc\_curve(true, predict)  
 roc\_auc = roc\_auc\_score(true, predict)  
 plt.plot(fpr, tpr, label=f'ROC curve of {labels[cl]} (area = {roc\_auc:.2f})')  
  
# 绘制平均ROC曲线（使用微观平均值）  
micro\_tpr = np.sum(true\_label, axis=0) / np.sum(true\_label)  
micro\_fpr, micro\_tpr, \_ = roc\_curve(true\_label.ravel(), predict\_label.ravel())  
micro\_roc\_auc = roc\_auc\_score(true\_label.ravel(), predict\_label.ravel())  
plt.plot(micro\_fpr, micro\_tpr, label=f'Micro-average ROC curve (area = {micro\_roc\_auc:.2f})', linestyle='--')  
  
# 标签和图例  
plt.xlabel('False Positive Rate')  
plt.ylabel('True Positive Rate')  
plt.title('Receiver Operating Characteristic (ROC) Curves')  
plt.legend(loc='lower right')  
  
# 显示图形  
plt.show()  
  
# 计算微观平均值  
print(f'Micro-average ROC-AUC: {micro\_roc\_auc:.2f}')

结果如下：

