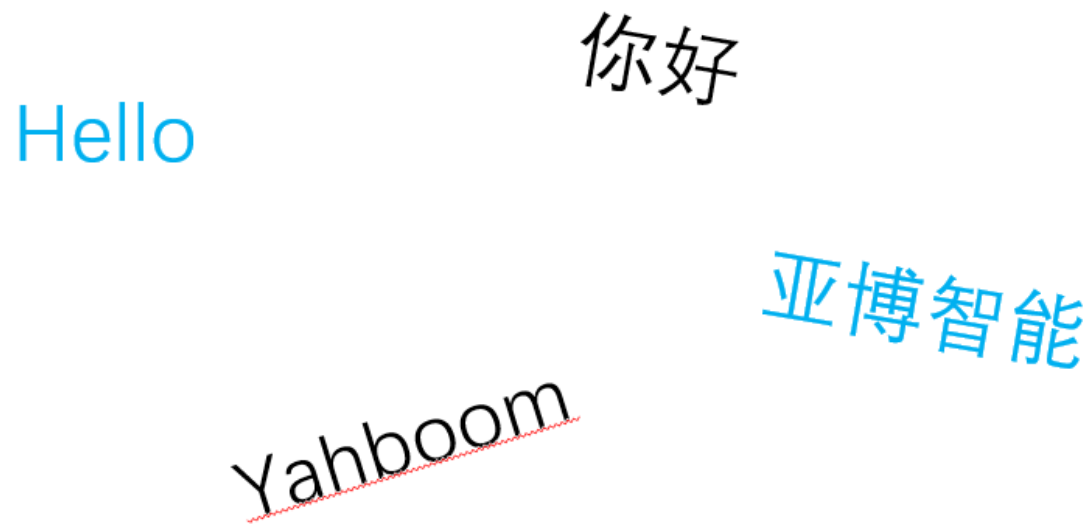
OCR Character Recognition

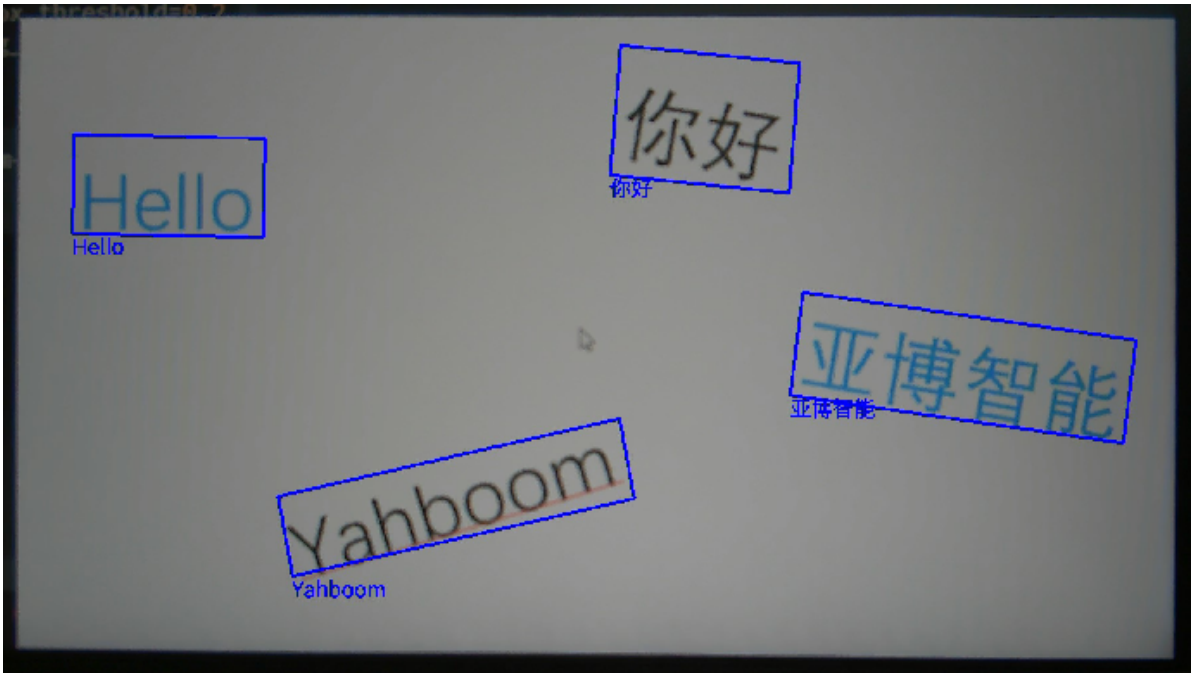
Routine Experiment Effect

Based on the OCR detection in the previous section, let's implement a simple recognition function

Run the example code in this section and point it to the image we prepared in the previous section:



The results of K230 recognition are as follows (supports Chinese and English):



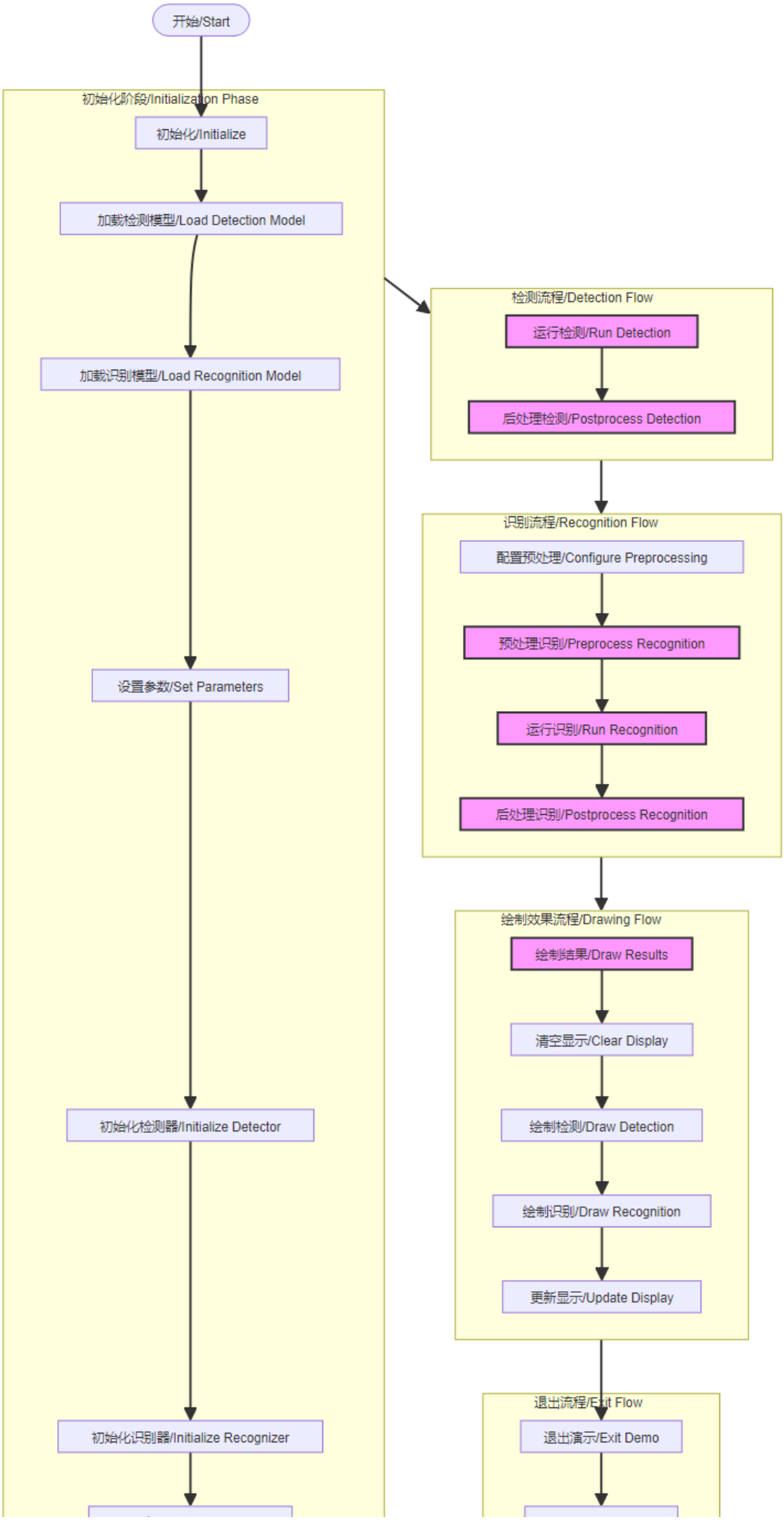
Code Explanation

Let's take a look at how the code is implemented. First, let's take a look at the overall code structure

Code structure

1. Initialization Phase:
    - Load detection model
    - Load recognition model
    - Set various parameters/Set parameters
    - Initialize detector
    - Initialize recognizer
    - Read dictionary
2. Detection Flow:
    - Run detection
    - Postprocess detection
3. Recognition Flow:
    - Configure preprocessing
    - Preprocess recognition input
    - Run recognition model
    - Postprocess recognition output
4. Drawing Flow:
    - Clear display
    - Draw detection
    - Draw recognition
    - Update display
5. Exit Flow:
    - Exit demo
    - Clean up

The flow chart is as follows:


开始/Start
初始化阶段/Initialization Phase
初始化/Initialize
加载检测模型/Load Detection Model
加载识别模型/Load Recognition Model
设置参数/Set Parameters
初始化检测器/Initialize Detector
初始化识别器/Initialize Recognizer
检测流程/Detection Flow
运行检测/Run Detection
后处理检测/Postprocess Detection
识别流程/Recognition Flow
配置预处理/Configure Preprocessing
预处理识别/Preprocess Recognition
运行识别/Run Recognition
后处理识别/Postprocess Recognition
绘制效果流程/Drawing Flow
绘制结果/Draw Results
清空显示/Clear Display
绘制检测/Draw Detection
绘制识别/Draw Recognition
更新显示/Update Display
退出流程/Exit Flow
退出演示/Exit Demo

Part of the code

For the complete code, please refer to the file [Source Code/09.Scene/02.ocr_rec.py]

```
    # run函数，执行推理
    # Run function for inference
    def run(self, input_np):
        # 先进行OCR检测 / First perform OCR detection
        det_res = self.ocr_det.run(input_np)
        boxes = []
        ocr_res = []
        for det in det_res:
            # 对得到的每个检测框执行OCR识别 / Perform OCR recognition on each
detected box
            self.ocr_rec.config_preprocess(input_image_size=[det[0].shape[2],
det[0].shape[1]], input_np=det[0])
            ocr_str = self.ocr_rec.run(det[0])
            ocr_res.append(ocr_str)
            boxes.append(det[1])
            # 执行垃圾回收，减少内存占用 / Perform garbage collection to reduce
memory usage
            gc.collect()
        return boxes, ocr_res

    # 绘制OCR检测识别效果
    # Draw OCR detection and recognition results
    def draw_result(self, pl, det_res, rec_res):
        # 清除叠加层 / Clear overlay layer
        pl.osd_img.clear()
        if det_res:
            # 循环绘制所有检测到的框 / Loop through all detected boxes
            for j in range(len(det_res)):
                # 将原图的坐标点转换成显示的坐标点，循环绘制四条直线，得到一个矩形框
                # Convert coordinates from original image to display coordinates
                # Draw four lines to form a rectangle
                for i in range(4):
                    # 坐标转换 / Coordinate conversion
                    x1 = det_res[j][(i * 2)] / self.rgb888p_size[0] *
self.display_size[0]
                    y1 = det_res[j][(i * 2 + 1)] / self.rgb888p_size[1] *
self.display_size[1]
                    x2 = det_res[j][((i + 1) * 2) % 8] / self.rgb888p_size[0] *
self.display_size[0]
                    y2 = det_res[j][((i + 1) * 2 + 1) % 8] /
self.rgb888p_size[1] * self.display_size[1]
                    # 绘制线段 / Draw line segment
                    pl.osd_img.draw_line((int(x1), int(y1), int(x2), int(y2)),
color=(255, 0, 0, 255), thickness=5)
                # 在框上方绘制识别文本 / Draw recognized text above the box
                pl.osd_img.draw_string_advanced(int(x1), int(y1), 32,
rec_res[j], color=(0, 0, 255))
```