OpenCV实践报告

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1. 实验要求

下载并安装opencv库，实践图像和视频显示（自选一幅图像和视频，打上个人信息，并显示）。

2. 实验步骤

2.1 下载安装opencv库

使用Python版的opencv，安装命令为 `pip install opencv-python`

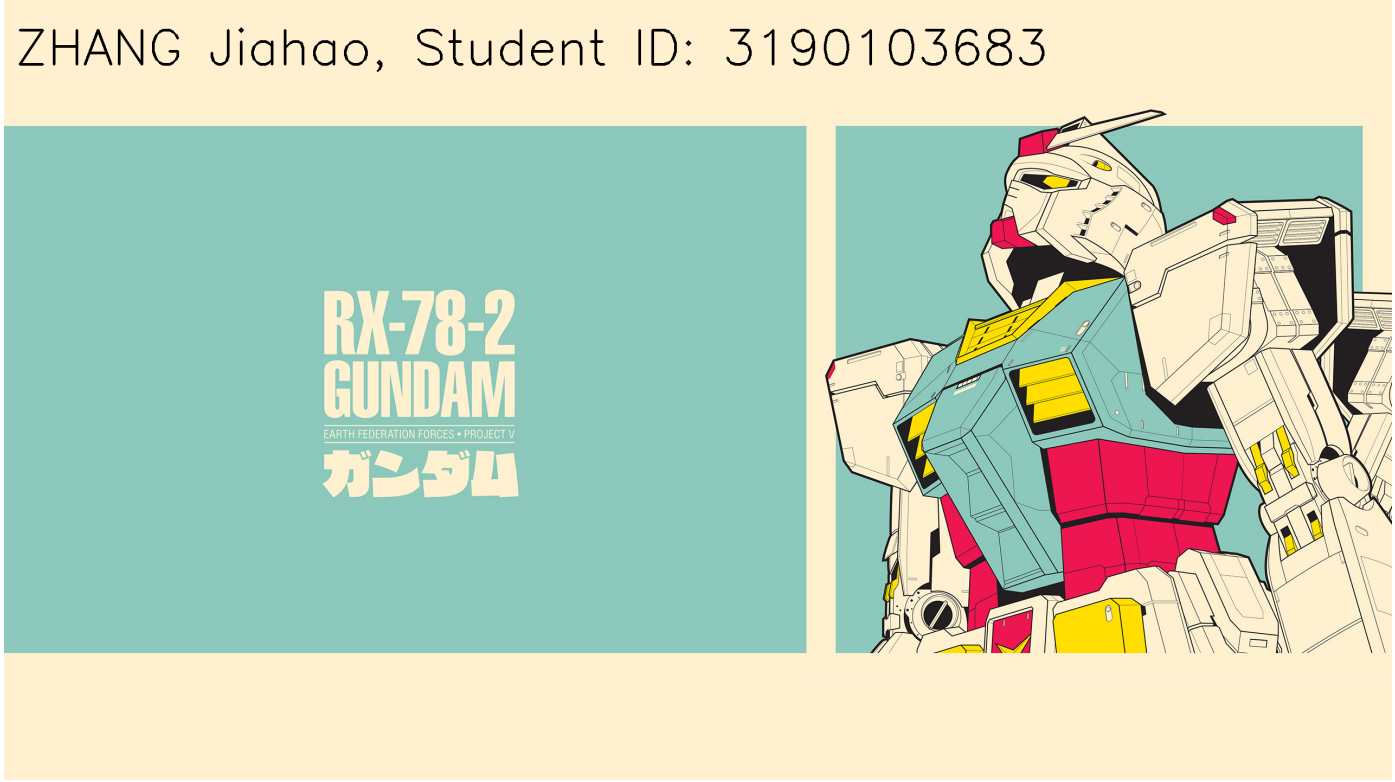
2.2 图像显示

代码如下：

```
import cv2
import numpy as np
# read image
image = cv2.imread("./hw1.png")
# set font style
font                   = cv2.FONT_HERSHEY_SIMPLEX
bottomLeftCornerOfText = (20,120)
fontScale              = 3
fontColor              = (0,0,0)
thickness              = 3
lineType               = 3
# put text
cv2.putText(image,'ZHANG Jiahao, Student ID: 3190103683',
    bottomLeftCornerOfText,
    font,
    fontScale,
    fontColor,
    thickness,
    lineType)
# show image
cv2.imshow("image",image)

cv2.waitKey()
# save image
cv2.imwrite("./hw1_result.png",image)
```

处理结果如下：



2.3 视频显示

主要思路：读取视频的每一帧，在每一帧上面都使用 `cv2.putText()` 函数，再将结果进行储存。

代码如下：

```
import cv2
import numpy as np

cap = cv2.VideoCapture('./hw2.mp4')
saver = cv2.VideoWriter("./hw2_result.mp4",cv2.VideoWriter_fourcc(*'XVID'),24,
(int(cap.get(cv2.CAP_PROP_FRAME_WIDTH)), int(cap.get(cv2.CAP_PROP_FRAME_HEIGHT))))

font                   = cv2.FONT_HERSHEY_SIMPLEX
bottomLeftCornerOfText = (20,100)
fontScale              = 1
fontColor              = (0,0,0)
thickness              = 3
lineType               = 3

while(True):
    ret, frame = cap.read()
    cv2.putText(frame,
                'ZHANG Jiahao, Student ID: 3190103683',
                bottomLeftCornerOfText,
                font,
                fontScale,
                fontColor,
```

```
                thickness,
                lineType)
  # Display the resulting frame
    cv2.imshow('video', frame)
    saver.write(frame)
  # creating 'q' as the quit
  # button for the video
    if cv2.waitKey(1) & 0xFF == ord('q'):
        break

# release the cap object
cap.release()
# close all windows
cv2.destroyAllWindows()
```

结果如下（视频某一帧的截图）：