浙江大学实验报告

专业：计算机科学与技术
姓名：吴同
学号：3170104848
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课程名称：	计算机视觉	指导老师：	宋明黎	电子邮件：	wutongcs@zju.edu.cn
实验名称：	椭圆拟合	实验类型：	综合型	同组同学：	无

1 Introduction

This is an ellipse fitting program implemented with OpenCV. The program receives a filename as its parameter. It creates a new file named with an *e_* prefix and the processed image is written into it.

2 Experimental Environment

- macOS Catalina 10.15
- clang version 11.0.0
- OpenCV version 4.0.1
- CMake version 3.13.4

3 Module Analysis and Result

In the processing of an image, the color image is first processed into a grayscale image and then the grayscale image is processed into a binary image. The **cv::findContours()** function is called to extract the outline of the binary image, and then the **cv::fitEllipse()** function is called to perform ellipse fitting on each contour. The ellipses are drawn onto a canvas and then blended with the original image. The blended image is written into the output image file.

Figure 1-4 shows the test results. The first two samples are given in the slide of the course. The last two samples are two figures of cells.

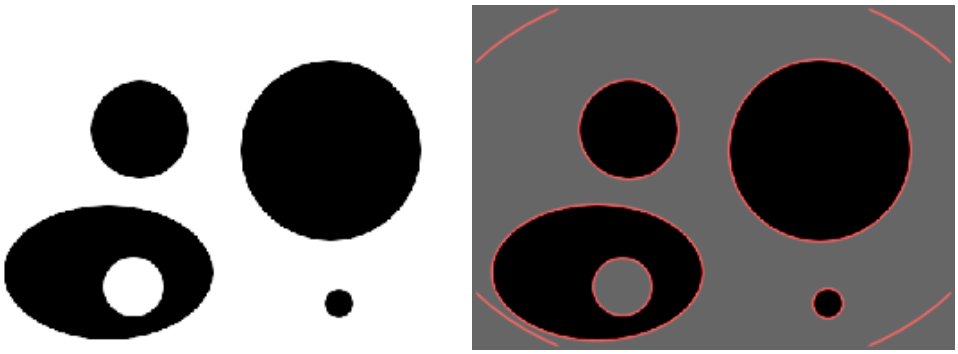

Figure 1: Test result of smaple 1

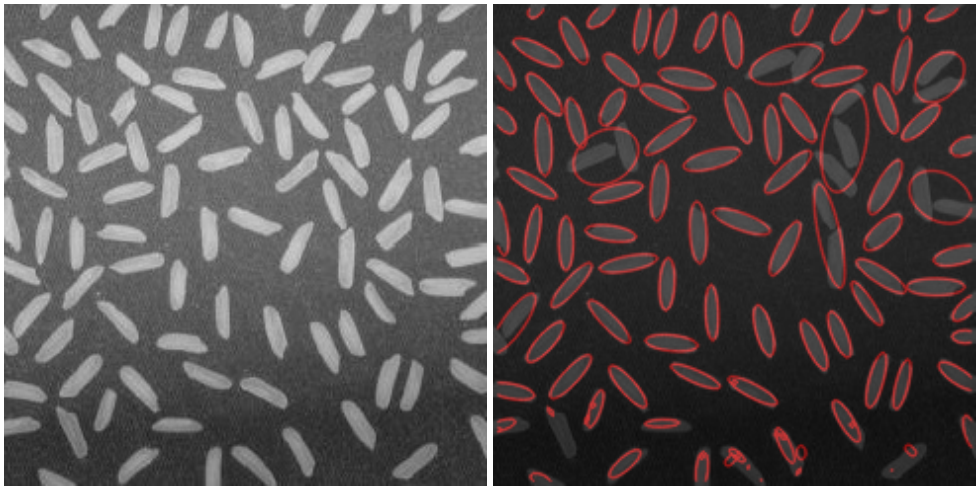

Figure 2: Test result of smaple 2

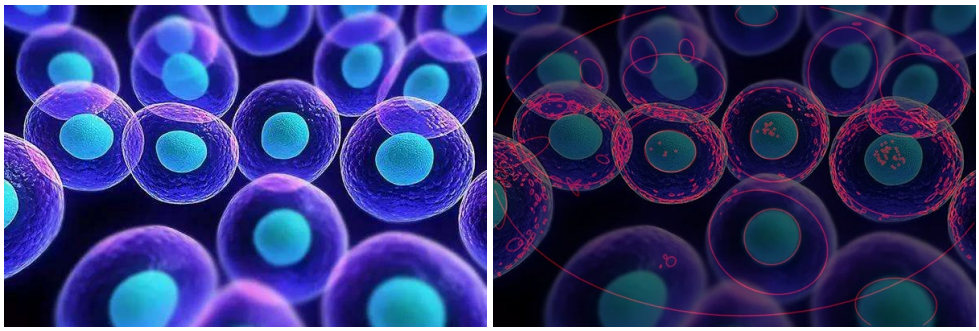

Figure 3: Test result of smaple 3

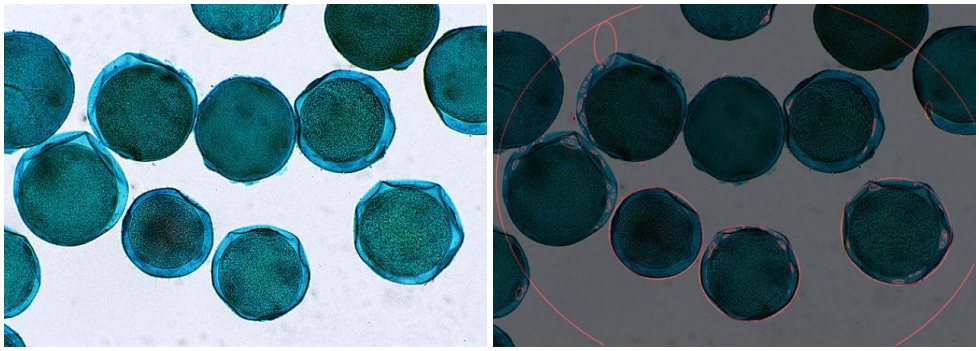

Figure 4: Test result of smaple 4

4 Review and Discussion

In this experiment, I have implemented the ellipse fitting program by reading OpenCV official documentation. I hope to implement the **fitEllipse()** function by myself and compare it with the OpenCV library function in the future.