Project 2: Morphological Image Processing

Given a binary image, please design a morphological algorithm to find its boundary. An example is shown in Figure 1.

To Do: Please process the image (size: 1024×1024) "\Figure_P2.jpg". Save your output picture as *Output_P2.png*. Tips: you need to binarize the original image first.

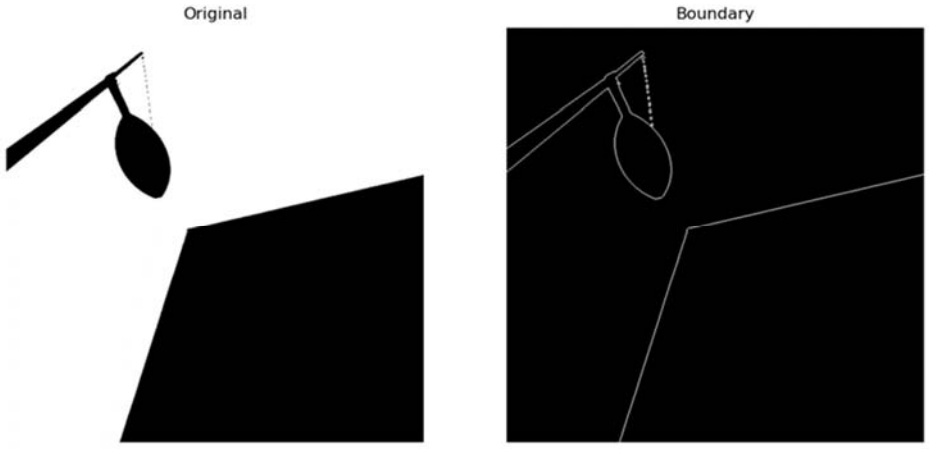

Figure 1. A binary image and its boundary (example).

Scoring Criteria:

(1) The style, organization, and content of the report;

(2) The correctness of the method used;

(3) The performance of the code.

Note:

(1) You can use any programing language you like.

(2) You ***cannot*** call any third-party or built-in library for key processing steps. However, some basic functions such as image I/O, visualization or mathematical operations are allowed. Taking python as an example, you cannot call any function from cv2, but you can use I/O and visualization functions in cv2 and use numpy to do mathematics.

(3) You are required to submit the source code and a report (a template is provided).

(4) Please pack all files (code and report) into one compressed ZIP/RAR file named

'proj2_student-id_short-name.zip/rar', and send it to: 24b951025@stu.hit.edu.cn.

(5) Deadline: November 13, 2024.

(6) Do it by yourself! Plagiarism is strictly prohibited.