**HW6 Report**

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**Introduction**

This program computes the Yokoi connectivity number (4-connected) of an binary image. The overall process includes the following steps:

*Preprocess*. Down-sample the source image using 8x8 block size with the topmost-left pixel’s value, and then binarize it with threshold=128.

*Main process*. Compute the Yokoi connectivity number of the binary image.

**Usage**

Place the source image and main.py under the same directory. Run the following command in the terminal.

python3 main.py -s <source>

Parameters

-s <source> : the file path of source image, default = lena.bmp

**Yokoi Connectivity Number**

For each white pixel in the binary image, compute the *f formula*:

where are the result of the *h formula* 4 corner neighborhood of the input pixel. The *h formula* is given as the following:

The result is saved as yokoi.txt as shown in the next page.

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| Screenshot of yokoi.txt |
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