Image Processing II
Watershed

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Abstract

The second homework assignment required us to implement the watershed transform - referring to the geological watershed - while following certain guidelines which could be summarized to the following list:

1. Implement the watershed algorithm as described in pseudo code from the textbook [1], for 4-connected and 8-connected neighborhoods.
2. Output a single CSV file for the transformed image in the using the same format, definition and value domains as the input image 'f'.
3. Do meaningful (motivated from a real-world perspective) watersheds for 3 other images.

Contents

1 Watershed Transform

There are many variations of the watershed transform used for image segmentation. The one implemented in this HW is the watershed by flooding method; first introduced by S. Beucher and C. Lantuéjoul in 1979 [2].

1.1 Variations

2 Implementation

2.1 Getting Neighbouring Pixels

3 Experiments & Results

4 Comparison

5 Task Distribution

References

[1] Pierre Soille. *Morphological image analysis: principles and applications*. Springer Science & Business Media, 2013.

[2] S Beucher and C Lantuejoul. *International Workshop on Image Processing: Real-time Edge and Motion Detection/Estimation*. 1979.