Morphological Profile Examples

Selim Aksoy

Department of Computer Engineering
Bilkent University
saksoy@cs.bilkent.edu.tr

CS 484, Spring 2012
Morphological profiles

- Opening by reconstruction isolates structures that are brighter than their surroundings.
- Closing by reconstruction isolates structures that are darker than their surroundings.
- These operations are applied using increasing structuring element (SE) sizes to generate morphological profiles.

- Structuring element: disk
- Variables:
  - Number of openings/closings
  - Radius increment (step size)
Figure 1: Opening and closing by reconstruction example.
Morphological profiles

(a) Grayscale    (b) SE    (c) Opening MP    (d) Derivative MP

Figure 2: Example morphological profile (MP) and its derivative (DMP).
Morphological profiles

(a) Opening DMP

(b) Thresholding at $DMP > 0$

Figure 3: Example connected components with $DMP > 0$. 

CS 484, Spring 2012

©2012, Selim Aksoy (Bilkent University)
Figure 4: Example connected components for a building structure.
Figure 5: Example connected components for SE sizes 2 to 10.