

Image Analysis

Exercise 5

9.10.2003

1. Consider two pixels at the locations (x_1, y_1) and (x_2, y_2) . Show (give proof) that their intersection point in the *Hough matrix* defines the line that goes via (x_1, y_2) and (x_2, y_1) in the original image.
2. Give equations for the (α, d) expression in Hough transform.
3. In Section 4.2 there is an algorithm for calculating D_8 -transform. Using this as a starting point, construct an algorithm, which calculates D_e -transform.
4. Define *opening* using only *dilation*.
5. Design algorithm for calculating D_4 -transform using morphological *erosion* operation.