INF 4300 2013

Exercises on shape representation

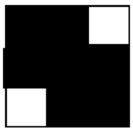
Problem 11.1 in G&W

Problem 11.8 in G&W

Problem 11.9 in G&W

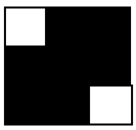
From 2010 exam: Chain Code Representation

You are given the binary shape and 4-directional code-table below. Object pixels are black.



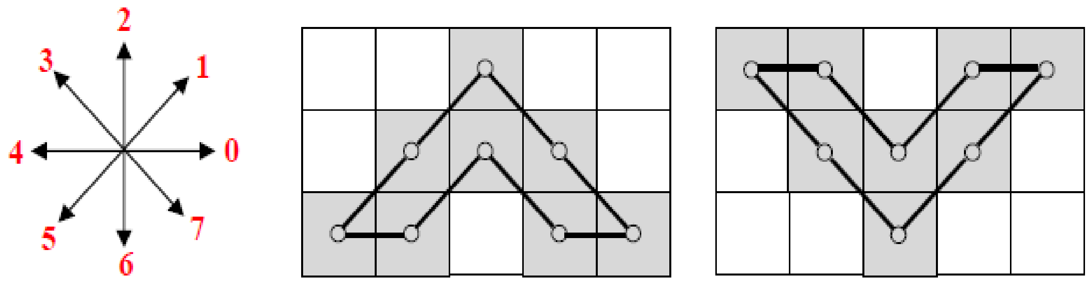
right	0
up	1
left	2
down	3

1. Compute the chain code for this particular object, starting with the top left object pixel and moving in the clockwise direction.
2. Explain how you can make the chain code independent of the start point, and demonstrate this by starting at the lower right object pixel.
3. Explain how you can make a simple transform of the chain code to obtain a description that is rotation invariant, and demonstrate this on the object below, to show that one of the shapes is a rotation of the other.



From 2011 Exam: Exercise 1: Chain Codes

You are given the 8-directional chain code and the two objects below.



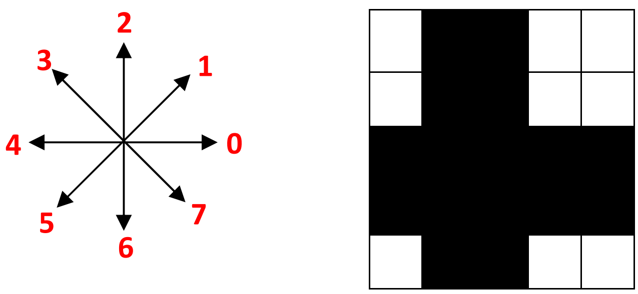
a) Chain code the boundary of the Λ-shaped object clockwise from the lower left pixel.

b) Which technique, based on the 8-directional absolute chain code, can be used to make a description of the Λ-shaped object that is independent of the start point? Demonstrate this by starting at the top pixel of the object, instead of the lower left.

c) The V- shaped object is a rotation of the Λ-shaped object.
Which technique, based on the clockwise relative chain code, will give you the same description of the two objects, independent of the start point?
Demonstrate this by starting at the upper left pixel of the V-shaped object.

From 2012 Exam: Exercise 1: Chain Codes

You are given the 8-directional chain code and the object below, where black is object pixels.



a) Chain code the boundary of the object clockwise from the upper left pixel.

b) Which technique will make the code invariant to the choice of start point?
Demonstrate this by starting at lower right pixel of the object.

c) Which technique will make the code rotation invariant?
Demonstrate this by rotating the object $\pi/2$ counterclockwise and start at one of the same object pixels as above.