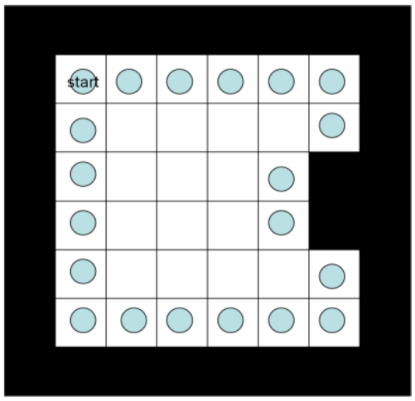
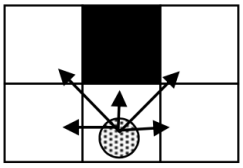
Intro. to AI: Assignment

[Deadline: February 25, 2019]

Write a report on your attempts to solve this simple wall-following problem as effectively as possible using any form of evolutionary intelligence (we only covered GA, you can use any!):





The simulated robot has five sensors which can detect the presence or absence of wall in the five grid locations it faces, as shown. It can take one of four actions: do nothing, turn left or right (at 90 degrees) on the spot, or go forward one cell. The fitness of the robot is how many of the highlighted cells next to the wall it has covered in a fixed number of sense- act cycles. Robots are allowed 28 such cycles per trial, i.e., enough to follow the wall perfectly. The robot starts in the position indicated, facing East.

Marking Scheme:

- Approach, quality of writing and visual impression (30%)
- An efficient and working python code (submitted on LMS) (70%)

Guideline:

Depending on font size, and line spacing, around two pages is a reasonable target length.

Assignment courtesy Prof. Larry Bull, UWE, Bristol