

# Artificial Intelligence

## Homework 1

Due 5pm 9/7

Consider a modified vacuum environment from the textbook in which the environment is two dimensional and the geography is unknown. The robot will be able to move left, right, up and down and clean. It has sensors for dirt and if there are obstacles in any particular direction.

1. Can a simple reflex agent be perfectly rational in this environment? Explain.
2. If you assume the room is known to be rectangular but of unknown size. Can a simple reflect agent clean the room without randomization? Explain.
3. Assume the room is still rectangular and you are given 2 bits of memory. Design a deterministic reflex agent that can start anywhere in the room and efficiently clean it.