Intro to Artificial Intelligence

Project 2 Report & Answers

07/20/2017

Murtala Aliyu

Ofomezie Emelle

3. Rule 2 performs better on average by a pretty significant margin, which is to be expected. When searching the map's cells that have the highest probability of finding the target, you are mathematically a lot surer that a target is probably NOT there if you don't find it the first time around, leading to less searches on average. This truth indeed holds true over multiple maps.

3x2 Rule 1 Average: 19.6 searches
3x2 Rule 2 Average: 9.2 searches

7x7 Rule 1 Average: 243.4 searches
7x7 Rule 2 Average: 19.7 searches

4. # of spaces away/(i-1) + (j+1) = % disposition of desired cell

Rule 1: You can compare the % disposition to the ABSOLUTE VALUE of the difference of the false negative of the desired target MINUS the false negative of the MINIMUM neighbor (the neighbor with the lowest false negative). If this ABSOLUTE VALUE difference is MORE than the % disposition, search the desired node, otherwise search the MINIMUM false negative neighbor. If equal choose either arbitrarily.

Rule 2: You can compare the % disposition to the ABSOLUTE VALUE of the difference of the current belief of the desired node MINUS the current belief of the MAXIMUM neighbor (the neighbor with the highest current belief). If this ABSOLUTE VALUE difference is MORE than the % disposition, search the desired node, otherwise search the MAXIMUM current belief neighbor. If equal choose either arbitrarily.

5. This story follows the logic of Rule 2, the more successful rule where we search the cell with the highest probability of finding the target. Just as how the man with confidence says he dropped his keys somewhere in the park but is still searching a well-lit area, searching cells with the lowest probability of returning a false negative gives the user more confidence in saying that the target is not there, which leads to fewer searches on average.