EXPERIMENT TO TEST ESTIMATION OF ROBOT POSITION IN A MAZE

Mikhail Ivanov
Timur Uzakov

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1 Purpose

Test and compare filtering, smoothing and Viterbi algorithms. Learn how they estimate the position, given observations from near, far sensors. Decide for which situation, which algorithm is most suitable.

2 Software resources

5 different mazes, robot, 4 near/far sensors, three estimation algorithms.

3 Methods

3.1

Load 5 maze configurations and create a for loop to iterate through them.

3.2

At each maze create another loop to define how often to process through one maze:10. Inside the latter loop create an instance of steps simulation and define to 100.

3.3

Run three algorithms returning lists of "hit or miss" errors and manhattan distances.

3.4

Collect and record data along the iterations.

4 Data interpretation

Average values are taken in order to compare the algorithms. Finaly, graphs are constructed with respect to each maze and with respect to each type of error.

References

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