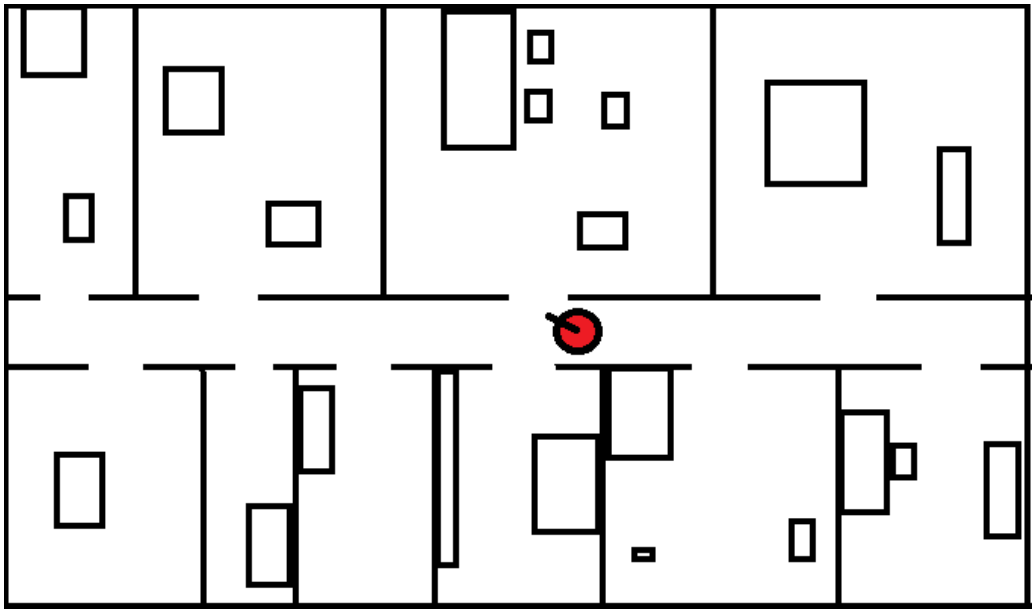
**Cognitive Robotics**

# Assignment 4

4.1) Given is a 2D grid-map and a robot pose (x, y, θ):



You find the map in the directory. Assume that every pixel has a size of 4cm x 4cm.

Generate laser-range measurements for an opening angle of 250° (125° left and right of the heading direction), every 2° by ray casting.

Use a maximum measurement range of 12m.

10 points

4.2) Implement the endpoint model for laser-range measurements.

Test your model by computing the likelihood of the generated laser scan for a 3D-grid of poses (x, y, θ).

For each 2D-cell of the x,y-grid of the map above, visualize the highest likelihood of all orientations θ as gray value.

10 points