ARO Homework 5: 2D Occupancy Grid

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Figure 1: Left: 2D pointcloud map (violet) and robot's positions (green), Right: 2D occupancy grid

You are given sequences of 2D pointclouds and corresponding positions of the robot obtained by your own implementation of ICP (HW4). Create 2D occupancy grid, i.e. rectangular array with pixels corresponding to spatial bins, which for each spatial bin specifies one the three following classes: (i) not yet seen (class -1), (ii) unoccupied (class 0), (iii) occupied (class 1). Each bin of the 2D occupancy grid could either contain hard decision or probability, which fuse knowledge from multiple measurements.

Bonus: Implement and use Bresenham's line algorithm https://en.wikipedia.org/wiki/Bresenham%27s_line_algorithm