

## Monte Carlo Localization

Monte Carlo Localization (MCL) is an algorithm used by robots to determine the position and orientation of the robot in an environment. When the robot is placed in an unknown environment, particles are placed in random distribution throughout the space. The particles estimate the possible states of the robot. As the robot moves around senses things, the particles change to predict and estimate the state after the movement is made. Depending on what it senses, the prediction can be more accurate. Particles that are outliers are discarded. Eventually, the particles become closer to the true location of the robot then the location and orientation is found.