Monte Carlo Localization for Mobile Robots

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- Presents the Monte Carlo method for localization for mobile robots
- Represents uncertainty by maintaining a set of samples that are randomly drawn from it instead of describing the probability density function itself

- Contributions:
  - In contrast to Kalman filtering based techniques, it is able to represent multi-modal distributions and thus can globally localize a robot
  - Reduces the amount of memory required compared to grid-based Markov localization
  - More accurate than Markov localization with a fixed cell size, as the state represented in the samples is not discretized

- Evaluates on datasets introduced in the paper