

Localization 1: Dudek-Romanik-Whitesides Localization

Localization overview

Introduction

Localization is the problem of determining and tracking the robot's position, relative to a map of its environment.

Localization is a big topic for mobile robots.

- Several different kinds of problems share the name “localization.”
- In many cases, the details of the algorithm vary depending on what sensors the robot has.

Types of localization problems

Passive vs. Active

- **Passive localization:** Interpret sensor data to determine the robot's state.
- **Active localization:** Choose actions designed to help determine the robot's state.

Types of localization problems

Local vs. Global

- **Local localization** (“pose maintenance”): Start with good information about the robot's state. Keep track of this knowledge as the robot moves around.
- **Global localization**: Start with no information about the robot's state. Try to eliminate this uncertainty.