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Learning Semantic Maps with Robots



Learning in the field of artificial intelligence means empowering autonomous systems with the ability to perform recurring tasks more efficiently or with greater accuracy. This requires a representation of the environment, because only this representation makes it possible to perform actions more efficiently. The construction of maps with robots has made great progress and currently semantics comes into focus.

Semantic maps in robotics refer to a representation of an environment that includes not just geometric information like walls and obstacles, but also semantic information about the objects and their relationships within that environment. These maps are crucial for robots to understand their surroundings in a more human-like manner, enabling them to navigate, interact, and perform tasks more effectively. Key aspects and uses of semantic maps in robotics are: object recognition and localization, semantic segmentation, scene understanding, task planning and execution, human-robot interaction, and long-term mapping and learning.