

Historical Developments of AI Planning and Search

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The purpose of this paper is to give an overview of three techniques that have been a major part of the development of AI planning and search.

Stanford Research Institute Problem Solver (STRIPS)

Stanford Research Institute Problem Solver (STRIPS) is an automated planner that was used in Shakey; One of the first robotic devices created with AI technology. The development of STRIPS led to the AI community adopting a representation language for planning problems. STRIPS representation language models the world by operators which have a set of preconditions and side effects.

Planning Domain Definition Language (PDDL)

The Planning Domain Definition Language (PDDL), a planning language inspired by STRIPS, was created in efforts to standardize Artificial Intelligence planning languages. PDDL separates the planning problem into two parts: **domain definition** and **problem definition**. The domain definition consists of the domain predicates and it's operators (also called actions). The problem definition contains the objects present in the problem instance. The current version, PDDL 3.1 is still a widely adopted planning language by Artificial Intelligence practitioners.

Graphplan

Graphplan is an automated planning algorithm that takes an planning problem expressed in STRIPS and can return a sequence of operations for reaching a goal state. The name graphplan was chosen because graphplan utilizes a planning graph to minimize search time and avoids searching the entire state space.

In conclusion, there have many advances in the artificial intelligence field. STRIPS is a very notable development in the field of Artificial Intelligence. Furthermore, PDDL and Graphplan were inspired by STRIPS and leveraged the automated planner. Artificial Intelligence is an exciting field that will continually introduce more algorithms to enhance planning and search problems.

References

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