Research review report on

Important historical developments in the field of AI planning and search

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In this research review we are going to see historical development in the field of AI planning and search development, Relationship between them and their impact on field of AI.

Stanford Research Institute Problem Solver (STRIPS)

STRIPS is an automated planner designed by Richard Fikes and Nils Nilsson [1].

STRIPS is a problem solver that attempts to find a sequence of operators in a space of world models to transform a given initial world model into a model in which a given goal formula can be proven to be true. It employs a resolution theorem prover to answer questions of particular models and uses means-ends analysis to guide it to the desired goal-satisfying model [1].

ADL and PDDL :

The Action Description Language (ADL) AN automated planning and scheduling system in particular for robots. It is considered an advancement of STRIPS [2]. ADL relaxed some of the restrictions in the STRIPS language and made it possible to encode more realistic problems. Nebel (2000) explores schemes for compiling ADL into STRIPS. The Problem Domain Description Language or PDDL (Ghallab et al., 1998) was introduced as a computer-parsable, standardized syntax for representing STRIPS, ADL, and other languages. PDDL has been used as the standard language for the planning competitions at the AIPS conference, beginning in 1998.

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Using PDDL to Solve Vehicle Routing Problems:

PDDL language is used to solve the Vehicle Routing Problem (VRP) is a classical problem in Operations Research, and there are many different variants of the VRP. A new approach to model standard VRP and some variants based on PDDL language, explains how the method constructs model and solves the problem using several PDDL planners, and analyses the planning results of these planners. By using PDDL Vehicle Routing Problem in realistic and structured manner [4].

Reference :

1. Richard E. Fikes, Nils J. Nilsson (Winter 1971). "STRIPS: A New Approach to the Application of Theorem Proving to Problem Solving".
2. https://en.wikipedia.org/wiki/Action_description_language
3. Stuart J. Russell, Peter Norvig (2010), Artificial Intelligence: A Modern Approach (3rd Edition).
4. https://hal.inria.fr/hal-01383334/document