

Historical Key Developments (AI Planning and Search)

This review introduce a short resume of 3 (three) AI Planning and Search researches including what is the relationship between them and how it improved the Artificial Intelligence research field.

Stanford Research Institute Problem Solver (STRIPS)

It is the most known planning system, but not the first.

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 [1].

STRIPS influenced in the representation language of Artificial Intelligence field [2], which introduced a set of operators to the representation language in AI field. STRIPS got interesting results about it language approach, but those wasn't the optimal solutions for same cases of test like on the "turn on the light-switch" problem [1].

Action Description Language (ADL)

The Action Description Language is considered as an advancement of STRIPS [3]. It allows the operator to be conditional, instead of everything that is not properly set is false (STRIPS approach) and, the most important, it introduced the action "types": static and/or dynamic. It syntax is almost the same of the STRIPS.

Planning Domain Definition Language (PDDL)

The PDDL attempts to standardize the Artificial Intelligence planning language, it was inspired by STRIPS and ADL (The Action Description) [1], both described above. The Goal of STRIPS wasn't to improve the representation language, but it was what they got at the most, but the PDDL, like the ADL, has it as the goal. PDDL got the closed world assumption present at STRIPS and mixed with the expressiveness of Pednault's ADL[5], though PDDL was based on both (STRIPS and ADL), it syntax is completely different of the others, it is considered more readable and it syntax is easier to implement[4].

References

1. Richard E. Fikes, Nils J. Nilsson (Winter 1971). "STRIPS: A New Approach to the Application of Theorem Proving to Problem Solving".
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3. Nilsson, N. J. Problem-Solving Methods in Artificial Intelligence. McGraw-Hill Book Company, New York, New York, 1971.
4. M.; Long, D. (2002). "PDDL+: Modeling continuous time dependent effects". Proceedings of the 3rd International NASA Workshop on Planning and Scheduling for Space.
5. E. Pednault. ADL: Exploring the middle ground between STRIPS and the situation calculus. In Proc. 1st Int. Conf. on Principles of Knowledge Representation and Reasoning, pages 324–332, 1989.