Research Review

for AIND Planning Project by Oleg Polosin

In this review I'll provide a brief overview of three important historical developments in the field of AI planning and search: STRIPS, Graphplan and PDDL.

STRIPS

STRIPS is an automated planner and the formal language of the inputs to this planner. It was developed by Richard Fikes and Nils Nilsson in 1971. STRIPS represents a world-model by a set of well-formed formulas and attempts to find a sequence of actions in a space of world models to transform an initial state into the state, where the given goal is true. STRIPS can be considered as the first mechanism for hierarchical planning.

Graphplan

Graphplan is an algorithm for automated planning. It was developed by Avrim Blum and Merrick Furst in 1995. Graphplan takes as input a planning problem expressed in STRIPS, explicitly constructs a compact structure called a Planning Graph and finds a shortest-possible partial-order plan, or states that a plan doesn't exists. Graphplan algorithm provides substantial improvement in running time compared with the partial-order planners of that time.

PDDL

The Planning Domain Definition Language (PDDL) is an attempt to standardize AI planning languages. It was developed by Drew McDermott and his colleagues in 1998. PDDL was introduced as a computer-parsable, standardized syntax for representing planning problems. It has been used as the standard language for the International Planning Competition since 1998. The most recent version, PDDL 3.1, introduces object-fluents.

References

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3. A. Blum and M. Furst, "Fast Planning Through Planning Graph Analysis", Artificial Intelligence, 90:281--300 (1997)
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