Research Review

Planning research has been the central of AI since its inception, it is well developed and can be used to solve real world problems. Here I listed few key developments in the research.

STRIPS (Stanford Research Institute Problem Solver) is an automated planner developed by Richard Fikes and Nils Nilsson in 1971 at SRI International.[1] STRIPS is a member of the class of problem solvers that search a space of "world models" to find one in which a given goal is achieved. At that time, the framework of problem solving had been central to much of the research in artificial intelligence. STRIPS introduced an expressive language for the problem solving that later became the base for most of the languages for expressing automated planning problem instances in use today. Nowadays, STRIPS is used to refer to the language rather than the planner.[2]

PDDL (Planning Domain Definition Language) is an attempt to standardize AI planning languages. It was first developed by Drew McDermott and his colleagues in 1998.[3] It was inspired by STRIPS and ADL. PDDL has been used as the standard language for the planning competitions at the AIPS conference, beginning in 1998.

The algorithm to solve planning problem is search. Various search algorithms had been developed including basic depth-first search, breadth-first search and heuristics based A* search and so on.[4]

During 1970s, STRIPS was discovered to be incomplete because it can't solve some very simple problems like Sussman anomaly. The limitation was found on STRIPS that satisfying one goal at a time seemed to prevent achieve the final goals. This discovery led to the arose of partial-order planning. Partial-order planning dominated the next 20 years of research, yet for much of that time, the field was not widely understood. (AIMA chapter 10)

While traditional approaches increased search space by including all possible subgoal orderings, another faster approach called Graphplan was invented by A. Blum and M. Furst (1997).[5]

References
1. Richard E. Fikes, Nils J. Nilsson (Winter 1971).
2. STRIPS on Wikipedia. https://en.wikipedia.org/wiki/STRIPS
3. McDermott, Drew; Ghallab, Malik; Howe, Adele; Knoblock, Craig; Ram, Ashwin; Veloso, Manuela; Weld, Daniel; Wilkins, David (1998).
4. P. E. Hart, N. J. Nilsson and B. Raphael, A formal basis for the heuristic determination of minimum-cost paths
5. A. Blum and M. Furst (1997). **Fast planning through planning graph analysis**. Artificial intelligence.