Planning Search Research Review

Chen Wen Shuo

This review consists of important historical developments in the field of AI planning and search and how they impacted on the field of AI as a whole.

STRIPS (Stanford Research Institute Problem Solver)

STRIPS is an automated planner developed by Richard Fikes and Nils Nilsson in 1971 at SRI International. The impact of STRIPS in the artificial intelligence field was greater in terms of the representation language it created, which is very close to the "classical" planning language. This language described a set of applicable operators that allowed to transform one state into a different state. This definition of a framework to solve complex planning problems has been a central to much of the research in artificial intelligence.

Action description language (**ADL**)

Action description language is an automated planning and scheduling system in particular for robots. It is considered an advancement of STRIPS. Edwin Pednault proposed this language in 1987. It is an example of an action language. Contrary to STRIPS, the principle of the open world applies with ADL: everything not occurring in the conditions is unknown (Instead of being assumed false). In addition, whereas in STRIPS only positive literals and conjunctions are permitted, ADL allows negative literals and disjunctions as well

PDDL (the Planning Domain Definition Language)

The PDDL is an attempt to standardize Artificial Intelligence (AI) planning languages. It was first developed by Drew McDermott and his colleagues in 1998 (inspired by STRIPS and ADL among others) mainly to make the 1998/2000 International Planning Competition (IPC) possible, and then evolved with each competition. The usage of a common language for representing and solving planning problems encourages greater reuse of research, allows to analyze different approaches in an easier way and thus aids faster progress in the artificial intelligence field.

References

Russell, Stuart J., and Peter Norvig. "Chapter 10: Classical Planning, Chapter 11: Planning and Acting in the Real World." Artificial Intelligence a Modern Approach. Boston: Pearson, 2016. N. pag. Print

"STRIPS." Wikipedia. Wikimedia Foundation, 22 Apr. 2017. Web. 22 Jun. 2017.

"Action Description Language." Wikipedia. Wikimedia Foundation, 1 June. 2017. Web. 22 Jun. 2017.

M.; Long, D. (2002). "PDDL+: Modeling continuous time dependent effects". Proceedings of the 3rd International NASA Workshop on Planning and Scheduling for Space.

"Planning Domain Definition Language." Wikipedia. Wikimedia Foundation, 23 May. 2017. Web. 22 Jun. 2017.

Nilsson, N. J. Problem-Solving Methods in Artificial Intelligence. McGraw-Hill Book Company, New York, New York, 1971.