AIND Planning research review

Andrzej Wytyczak-Partyka

January 16, 2018

1 Introduction

Planning has been in the eye of AI community since the very beginning of AI. Planning applications have been driving research in AI for years. Below is a brief description of 3 important developments in the field of AI planning.

2 Graphplan

The birth of Graphplan algorithm in 1995 [1] has moved the research around planning away from partial-order planning and allowed the researchers to broaden the area of applications by translating various problems to planning problems and using solvers to solve them.

3 PDDL

The development and wide adoption of Planning Domain Definiton Language [3] has enabled researchers to benchmark their algorithms more easily. Before PDDL - languages like STRIPS or ADL and their multiple extensions and flavors have been used but the multitude of languages made comparing algorithms more difficult.

4 HSP

In 1998 the Heuristic Search Planner [2] has shifted the research from backward search to forward search (progression planners), which until 1998 seemed unfeasible because of large computational effort (e.g. large branching factor). HSP has shown how relaxing the original planning problem can help create an admissible heuristic which can then be used e.g. for A*.

References

[1] Avrim L Blum and Merrick L Furst. "Fast planning through planning graph analysis". In: *Artificial intelligence* 90.1 (1997), pp. 281–300.

[2] Blai Bonet and Hector Geffner. "Planning as heuristic search: New results". In: *European Conference on Planning*. Springer. 1999, pp. 360–372.

[3] Drew McDermott et al. "PDDL-the planning domain definition language". In: (1998).