In my research I discovered that there are three major developments in the field of AI planning and search that lead us to where we are today. The first significant advancement is the general framework STRIPS. STRIPS was developed in 1971 by Richard Fikes and Nils Nilsson and is a model, which tries to uncover a sequence of operations in a state space that will traverse form an initial state to a goal state. This advancement is the foundation for current planning and search problems and is the framework which is taught in the planning and search section of the Udacity Nanodegree. This framework gives us the ability to solve many different problems as long as the problem and the world domain can be described in a finite set of actions with preconditions and effects. Planning may not seem like the most powerful or sophisticated form of AI, however it aids in the elections of intelligent agents trying to observe the world through sensors and perform actions based off their perception, Autonomous robots from a rumba to robots that are sent on space explorations.

Advancements in Planning have also play a hand in autonomous cars and drones which are becoming more and more a part of our daily lives. These systems need to take an observations of their current state in the world and what their desired goal is and then find a sequence of actions to get there. All of a sudden a seemingly simple language has the power to bring to life amazing technology.

Successes such as this create excitement about building planners that work in the real world. In addition applications such as the Mars Rovers can provide a better understanding of real-world planning. This experience would lead to better theories, and better theories lead to better real-world planners. Finally, there has been an increase in work in nonclassical domains. First, Partial-Order Planning, which is used in the Remote Agent and the Mars Rovers, are ways to reason about time, durations, and resources. Next, HTN Planning has been used in a variety of application domains. Although most HTN planners have been influenced heavily by concepts from classical planning, they incorporate capabilities that go in various ways beyond the restrictions of classical planning. Planning in Nondeterministic and Probabilistic Domains, such as Markov Decision Processes, have multiple possible outcomes, with probabilities for each outcome. A series of recent papers have shown how to extend domain-configurable planning techniques to work in nondeterministic and probabilistic planning domains. In comparison with previous algorithms for such domains, these new algorithms exhibit substantial performance advantages—advantages analogous to the ones for domain-configurable algorithms in classical planning domains.