Summary of “State Projection via AI Planning”[1]

In this module, we concerned ourselves with scenarios where the goals are known, and we use AI to find a plan to achieve such goals, some of the methods even guaranteed the project to be optimal or better said guaranteed the returned plan to be the shortest way possible.

But in real life, many scenarios may not have known goals, for example in financial markets the most interesting problems are about predicting the future. And in such cases, we are not interested in finding a single plan to achieve a single state but finding out a set of possible scenarios and how they might happen. To be able to produce such projections it is necessary to encode domain knowledge. The paper proposes a method to make such predictions using Oil Markets as its domain.

Summary of results

The paper presents a formal definition of the Future State Projection problem and does several contributions, the most interesting ones in the areas of translating domain knowledge into the planning language, and transforming raw data into observations.

Encoding domain knowledge into the planning language is challenging because the domain expert (a human) might not be able to express his knowledge in the planning definition language, and it will waste the work already done in the domain encoding the body of knowledge in formats like Mind Maps.

Other input data has other formats and needs to be transformed to make projections based on real world events. For this purpose, they used automated text analytics algorithms.

My conclusion is that the application of any of the AI methods we have studied in this course is not possible in isolation, any real world project will require the use of multiple methods at different stages to create an AI pipeline.

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[1] Sohrabi, S., Riabov, A.V. and Udrea, O., 2017. State Projection via AI Planning. Available At: http://www.cs.toronto.edu/~shirin/SohrabiRiabovUdreaAAAI2017.pdf