

SFB/TR 8 Spatial Cognition / IQN Video Conference

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THEORY AND PRACTICE OF RELATIONAL DECISION-THEORETIC PROBLEMS

The last decade many techniques have been developed that lift Markov decision processes and its accompanying solution techniques, reinforcement learning and dynamic programming, to the relational domain. Such techniques are able to pose sequential utility-based decision making problems, such as navigation and manipulation, in high-level knowledge representation, and obtain generic solutions that generalize over objects and relations in the domain. In this talk I will introduce this setting and outline the main directions, distinguishing between typical model-free (i.e. reinforcement learning) and model-based settings.

In the second part of the talk, I will discuss the general methodology of intensional dynamic programming (IDP), based on logical regression and abductive repartitioning, which is about model-based solutions for propositional and relational representations. To illustrate IDP I will discuss a particular implementation in the relational setting. A second method that will be discussed is the DT-ProbLog language, which is a general programming language for solving relational decision-theoretic problems.

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Vortragsbeginn: 15:30

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