SFB/TR 8 SPATIAL COGNITION

IQN

SFB/TR 8 Spatial Cognition / IQN Video Conference

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Toward Integrating Grounding, Action and Control

This talk presents my vision statement on realizing systems that integrate high-level symbolic reasoning with low-level control. Within a narrowed context, integration along three main tiers, namely, ontological grounding, reasoning about actions & change, and low-level control may be envisaged to realize such an endeavor. First, I will present a case-study on the grounding of qualitatively modelled synthetic environment data. Although the objectives of this study are rather information-theoretic, namely, integration and interoperability, I will also speculate on its potential applicability and scalability to other domains involving the representation of spatial information and its use for integrated spatio-terminological reasoning.

The second part of the talk motivates on the paradigm of 'Reasoning about Space, Actions and Chage' (RSAC) and provides a *sketch* of the manner in which it may be operationalised within the logical framework of the situation calculus. This is followed by a detailed treatment of the application of default and non-monotonic reasoning patterns in the spatial domain, a topic that emanates from operationalising the stated RSAC paradigm. The main point that I would like to make here is that if existing qualitative spatial abstractions are to be applied in realistic dynamic domains, their integration within a standard first-order framework is crucial in order to implement realistic computational tasks involving spatial planning, explanation and simulation. Finally, I present recent work on the development of an experimental cognitive robotics framework that, in the long-term, aims to serve as a vehicle for the realisation of the afore-discussed agenda. I conclude with some outlook and collaboration potentials.

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informelle Kaffeerunde: 15.15
Vortragsbeginn:15.30 Uhr

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