

SFB/TR 8 Spatial Cognition / IQN Video Conference

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Qualitative Spatial Change in Mereotopology Spatio-temporal Pattern Mining as Abduction

Spatial configurations tend to change. Dealing with spatial representations often means dealing with changing representations. Existence itself is a fundamental change. There are many other dimensions of change viz. change in shape, location etc. Notions of spatio-temporal continuity hold a key. Even though continuity is basic to our understanding of physical processes and change, it remains an implicitly assumed notion. The work described here is concerned with developing a mereotopological spatio-temporal theory based on space-time histories and formalizing an intuitive notion of spatio-temporal continuity for a qualitative theory of spatial change. Within the mereotopological theory an abductive framework for mining spatio-temporal patterns is formulated. In general, abductive reasoning may yield more than one possible explanation and is accompanied by some preference criteria expressed through heuristics. Here the abductive technique of circumscription is used to implement the heuristic that changes should occur only when forced to.

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