Freksa / Habel / Wender

Spatial Cognition

An Interdisciplinary Approach to Representing and Processing Spatial Knowledge

Research on spatial cognition is a rapidly evolving interdisciplinary enterprise for the study of spatial representations and cognitive spatial processes, be they real or abstract, human or machine. Spatial cognition brings together a variety of - search methodologies: empirical investigations on human and animal orientation and navigation; studies of communicating spatial knowledge using language and graphical or other pictorial means; the development of formal models for r- resenting and processing spatial knowledge; and computer implementations to solve spatial problems, to simulate human or animal orientation and navigation behavior, or to reproduce spatial communication patterns. These approaches can interact in interesting and useful ways: Results from empirical studies call for formal explanations both of the underlying memory structures and of the processes operating upon them; we can develop and - plement operational computer models obeying the relationships between objects and events described by the formal models; we can empirically test the computer models under a variety of conditions, and we can compare the results to the - sults from the human or animal experiments. A disagreement between these results can provide useful indications towards the re nement of the models.

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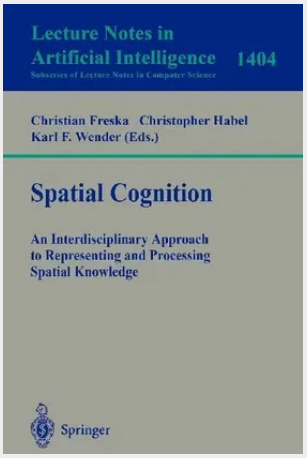

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