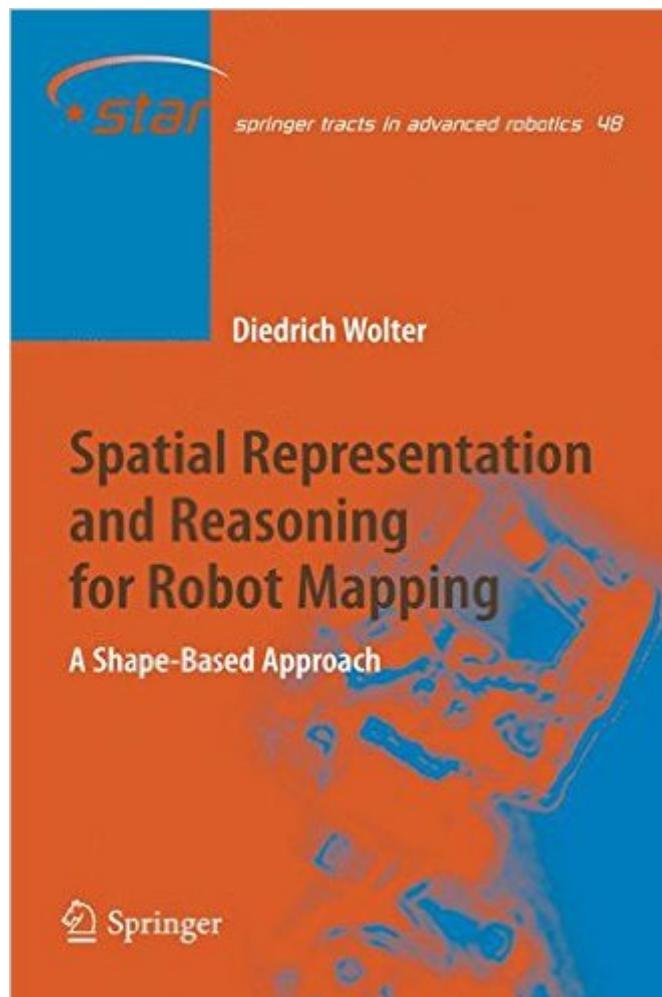


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Spatial Representation And Reasoning For Robot Mapping: A Shape-Based Approach (Springer Tracts In Advanced Robotics)



Synopsis

This book demonstrates benefits of abstract and qualitative reasoning that have not received much attention in the context of autonomous robotics before. Bremen, Christian Freksa December 2007
Director of the SFB/TR 8 Spatial Cognition Preface This book addresses spatial representations and reasoning techniques for reliable robot mapping, providing an analysis of fundamental representations and processes involved. A spatial representation based on shape information is proposed and shape analysis techniques are developed to tackle the correspondence problem in robot mapping. A general mathematical formulation is presented to provide the formal ground for an efficient matching of configurations of objects. This book is a slightly revised version of my doctoral thesis submitted to the Faculty of Mathematics and Computer Science of the University of Bremen, Germany.

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