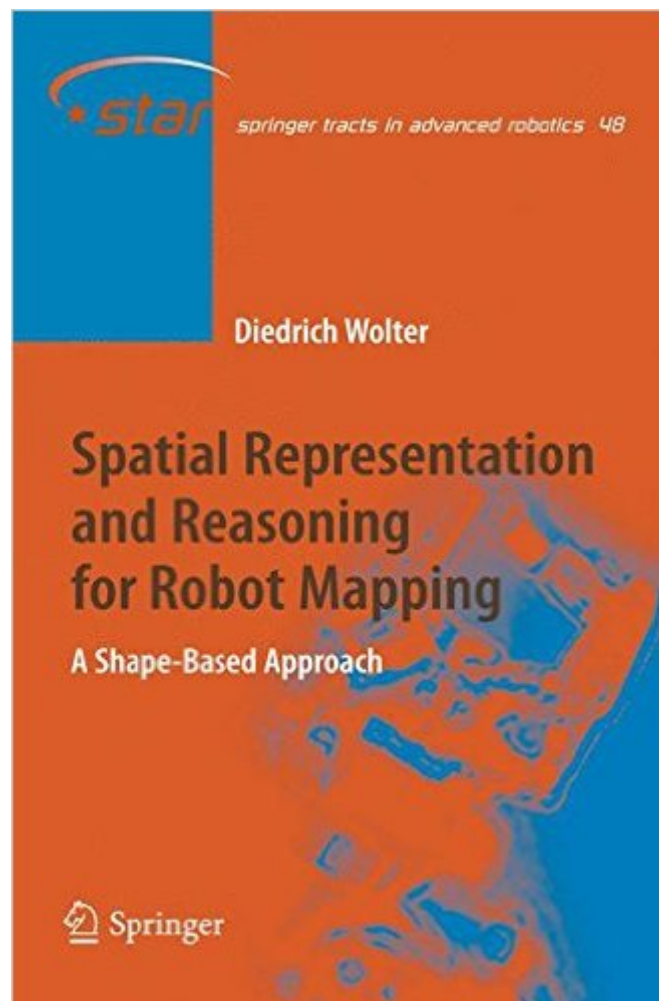


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Spatial Representation And Reasoning For Robot Mapping: A Shape-Based Approach (Springer Tracts In Advanced Robotics)



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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 mobile 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.

Many contributed to the development of a dissertation, but some of them stand out. Christian Freksa, I thank you for supporting and encouraging my work, for introducing me to interdisciplinary work, for giving me the freedom to develop this dissertation, and for providing an enjoyable atmosphere to work in. Longin Jan Latecki, thank you for countless in-depth discussions helping me to develop and position my work, for the fruitful collaboration, and for making a research stay possible that has been very valuable to me. I thank the research groups in Bremen and Philadelphia for helpful discussions and feedback, in particular Jan Oliver Wallgrun. I also thank Kai-Florian Richter, Sven Bertel, and Lutz Frommberger for feedback on this work. Robert Ross, thank you for helping to proof-read this dissertation.

Book Information

Series: Springer Tracts in Advanced Robotics (Book 48)

Hardcover: 188 pages

Publisher: Springer; 2008 edition (August 27, 2008)

Language: English

ISBN-10: 3540690115

ISBN-13: 978-3540690115

Product Dimensions: 6.1 x 0.5 x 9.2 inches

Shipping Weight: 12 ounces (View shipping rates and policies)

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