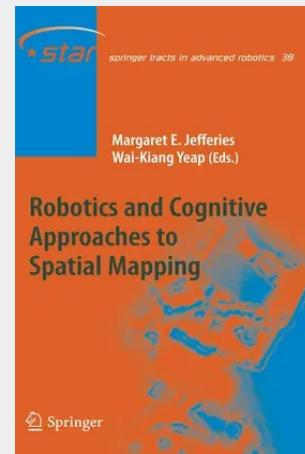


Robotics and Cognitive Approaches to Spatial Mapping

This important work is an attempt to synthesize two areas that need to be treated in tandem. The book brings together the fields of robot spatial mapping and cognitive spatial mapping, which share some common core problems. One would expect some cross-fertilization of research between the two areas to have occurred, yet this has begun only recently. There are now signs that some synthesis is happening, so this work is a timely one for students and engineers in robotics.

At the dawn of the new millennium, robotics is undergoing a major transformation in scope and dimension. From a largely dominant industrial focus, robotics is rapidly expanding into the challenges of unstructured environments. Interacting with, assisting, serving, and exploring with humans, the emerging robots will increasingly touch people and their lives. The goal of the new series of Springer Tracts in Advanced Robotics (STAR) is to bring, in a timely fashion, the latest advances and developments in robotics on the basis of their significance and quality. It is our hope that the wider dissemination of research developments will stimulate more exchanges and collaborations among the research community and contribute to further advancement of this rapidly growing field. The collection edited by Margaret E. Jefferies and Albert Yeap is the fourth one in the series on mapping, and keenly focuses on the common core problems between cognitive and robot spatial mapping. Such cross-fertilisation was made possible thanks to a thematic workshop held in early 2003 at Auckland University of Technology, where scientists from the two communities, psychologists and roboticists, met and discussed freely in a meeting-of-the-mind environment. The ambitious goal of the volume following the workshop is to show how cognitive researchers should give more thoughts to the perceptual and localization problems while robotics researchers should consider implementing autonomous systems not having the sole task of building a map of the environment. A number of significant applications are described where this sort of gap is effectively bridged.



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