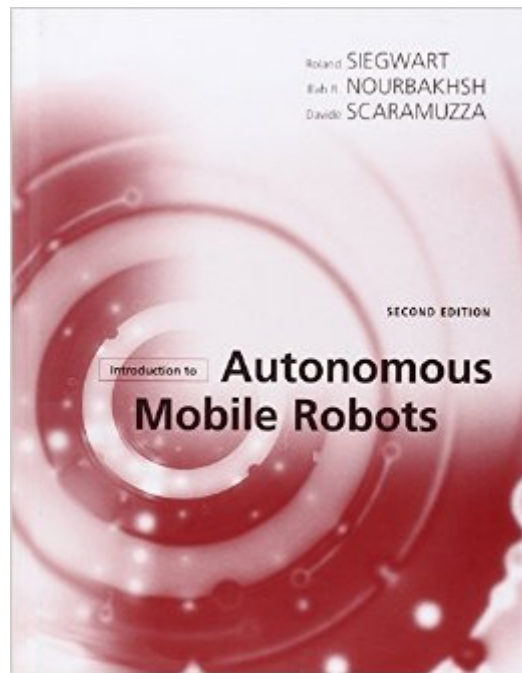# Introduction To Autonomous Mobile Robots (Intelligent Robotics And Autonomous Agents Series)

Synopsis

Mobile robots range from the Mars Pathfinder mission's teleoperated Sojourner to the cleaning robots in the Paris Metro. This text offers students and other interested readers an introduction to the fundamentals of mobile robotics, spanning the mechanical, motor, sensory, perceptual, and cognitive layers the field comprises. The text focuses on mobility itself, offering an overview of the mechanisms that allow a mobile robot to move through a real world environment to perform its tasks, including locomotion, sensing, localization, and motion planning. It synthesizes material from such fields as kinematics, control theory, signal analysis, computer vision, information theory, artificial intelligence, and probability theory. The book presents the techniques and technology that enable mobility in a series of interacting modules. Each chapter treats a different aspect of mobility, as the book moves from low-level to high-level details. It covers all aspects of mobile robotics, including software and hardware design considerations, related technologies, and algorithmic techniques.This second edition has been revised and updated throughout, with 130 pages of new material on such topics as locomotion, perception, localization, and planning and navigation. Problem sets have been added at the end of each chapter. Bringing together all aspects of mobile robotics into one volume, Introduction to Autonomous Mobile Robots can serve as a textbook or a working tool for beginning practitioners.Curriculum developed by Dr. Robert King, Colorado School of Mines, and Dr. James Conrad, University of North Carolina-Charlotte, to accompany the National Instruments LabVIEW Robotics Starter Kit, are available. Included are 13 (6 by Dr. King and 7 by Dr. Conrad) laboratory exercises for using the LabVIEW Robotics Starter Kit to teach mobile robotics concepts.

Book Information

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Customer Reviews

I am a phd student in robot perception and I was really amazed by this book. At the beginning I thought it was just an introduction to robotics but its much more than that. Many algorithms are explained in a very appealing and simple way. Especially I liked all the perception, localization, and planning chapters. Definitely an excellent book that I strongly recommend to both experts and non.

I'm in my third year of studies as an undergraduate CS major, and I just read this book over Christmas break. (I admit there is a difference between reading a book and being able to apply all the knowledge contained therein, but I think I did reach a fairly good grasp of the material.)The most useful parts to me were 1) a derivation of various robot kinematic models, 2) the variety of probabilistic localization models, and 3) the descriptors of basic computer vision algorithms. The book doesn't hold your hand through the *implementation* of anything, which can make it harder to visualize at times. It does provide enough detail, though, that I could implement (with some effort) most, if not all, of the algorithms and techniques in the book. I really liked that this book provided a survey of topics, rather than going into great detail on one particular issue. There are a large number of references (books, websites, and papers) for each topic in the book, so the interested reader can pursue their favorite component of the book further.I felt the path planning and robot software architecture sections in Ch 6 were a little "rushed" and the vision section seemed long when compared with the rest of the book, but overall the authors spent a suitable amount of time discussing each topic.

Just as the title says, this book introduces the reader to mobile robotics and the aspects that need to be taken into account when designing mobile robots, and it does that in a good way. To be precise, the discussions in the book are quite easy to follow, contributing to a pleasant reading experience; moreover, many useful references are supplementing the topics covered.That being said, "Introduction to Autonomous Mobile Robots" is probably not the only text that one would consult when working on mobile robotics, as the authors don't go into details for some of the topics, but it is definitely a good start. Give it a try.

A serious robot motion book for the student roboticist. This is a text book for an online class and college level classes. Better brush up on linear algebra before reading this book. Not a problem for someone in college with a fresh background in math. The subject of robot motion is covered at a nice level, and other reviewers do a better job than myself in covering the book.

Pretty good, great for working through math problems and understanding the difficult matrices for robotics. A lot of focus on robotic arms and matrices, good for my intro to robotics class.

Good book that covers the most usable concepts of autonomous robots.

Introduction to Autonomous Mobile Robots (Intelligent Robotics and Autonomous Agents series) Designing Sociable Robots (Intelligent Robotics and Autonomous Agents series) Probabilistic Robotics (Intelligent Robotics and Autonomous Agents series) Principles of Robot Motion: Theory, Algorithms, and Implementations (Intelligent Robotics and Autonomous Agents series) Robotics: Everything You Need to Know About Robotics From Beginner to Expert (Robotics 101, Robotics Mastery) Robot Programming: A Guide to Controlling Autonomous Robots Famous Robots and Cyborgs: An Encyclopedia of Robots from TV, Film, Literature, Comics, Toys, and More Mobile Apps Made Simple: The Ultimate Guide to Quickly Creating, Designing and Utilizing Mobile Apps for Your Business - 2nd Edition (mobile application, ... programming, android apps, ios apps) Robotics: The Beginner's Guide to Robotic Building, Technology, Mechanics, and Processes (Robotics, Mechanics, Technology, Robotic Building, Science) Robotics: Everything You Need to Know About Robotics from Beginner to Expert Robotics: Discover The Robotic Innovations Of The Future - An Introductory Guide to Robotics Cool Colleges: For the Hyper-Intelligent, Self-Directed, Late Blooming, and Just Plain Different (Cool Colleges: For the Hyper-Intelligent, Self-Directed, Late Blooming, & Just Plain Different) Jeff Herman's Guide to Book Publishers, Editors and Literary Agents: Who They Are, What They Want, How to Win Them Over (Jeff Herman's Guide to Book Editors, Publishers, and Literary Agents) Mobile Robotics for Multidisciplinary Study (Synthesis Lectures on Control and Mechatronics) Mobile Design and Development: Practical concepts and techniques for creating mobile sites and web apps (Animal Guide) Mobile App Marketing And Monetization: How To Promote Mobile Apps Like A Pro: Learn to promote and monetize your Android or iPhone app. Get hundreds of thousands of downloads & grow your app business Mobile Computing Principles: Designing and Developing Mobile Applications with UML and XML Designing Mobile Payment Experiences: Principles and Best Practices for Mobile Commerce Apps: Make Your

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