

World Scientific Series in Robotics and Intelligent Systems - Vol. 28

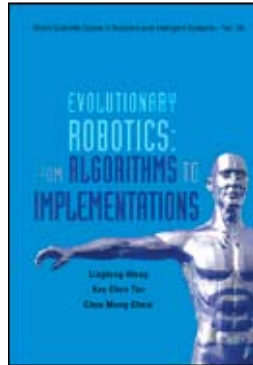
EVOLUTIONARY ROBOTICS: FROM ALGORITHMS TO IMPLEMENTATIONS

by **Lingfeng Wang** (Texas A&M University, USA), **Kay Chen Tan** (National University of Singapore, Singapore), & **Chee Meng Chew** (National University of Singapore, Singapore)

"This book is a refreshing and much needed addition to the field of Robotics, and concentrates on the application of soft computing for intelligent sensing, learning, and robot navigation ... the book is particularly valuable for researchers and practitioners of intelligent robot navigation, as a convenient and advanced reference. The authors have been able to expand the horizons of the field and to introduce novel ways of looking at the traditional problem of robot navigation.

IEEE Computational Intelligence Magazine

Readership: Researchers in evolutionary robotics, and graduate and advanced undergraduate students in computational intelligence.



268pp **Jul 2006**
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978-981-277-314-2 (ebook) **US\$130**

Series in Machine Perception and Artificial Intelligence - Vol. 54

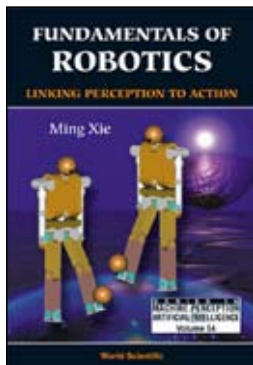
FUNDAMENTALS OF ROBOTICS

Linking Perception to Action

by **Ming Xie** (Singapore-MIT Alliance & Nanyang Technological University, Singapore)

This book will guide you, the curious beginner, from yesterday to tomorrow. The book will cover practical knowledge in understanding, developing, and using robots as versatile equipment to automate a variety of industrial processes or tasks. The book will also discuss the possibilities we can look forward to when we are capable of creating a vision-guided, learning machine.

Readership: Upper-level undergraduates, graduates and researchers in robotics & automated systems, artificial intelligence, machine perception and computer vision.



716pp **Apr 2003**
978-981-238-313-6 **US\$148 £110**
978-981-256-482-5 (ebook) **US\$192**

CLUSTER COMPUTING FOR ROBOTICS AND COMPUTER VISION

by **Damian M Lyons** (Fordham University, USA)

In this book, we look at how cluster technology can be leveraged to build better robots. Algorithms and approaches in key areas of robotics and computer vision, such as map building, path planning, target tracking, action selection and learning, are reviewed and cluster implementations for these are presented.

Readership: Academics and professionals in robotics & automated systems, machine perception/computer vision, supercomputing, artificial intelligence and neural networks.

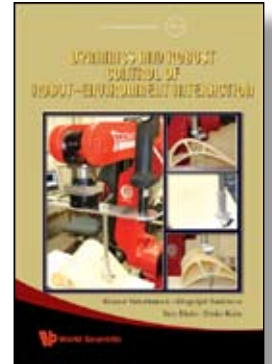
200pp **Sep 2011**
978-981-283-635-9 **US\$54 £41**
978-981-283-636-6 (ebook) **US\$70**

New Frontiers in Robotics - Vol. 2

DYNAMICS AND ROBUST CONTROL OF ROBOT-ENVIRONMENT INTERACTION

by **Miomir Vukobratovic** ("Mihajlo Pupin" Institute, Belgrade, Serbia), **Dragoljub Surdilovic** (Fraunhofer Institute for Production Systems & Design Technology IPK, Berlin, Germany), **Yury Ekalo** (St Petersburg Electrotechnical University, Russia), & **Dusko Katic** ("Mihajlo Pupin" Institute, Belgrade, Serbia)

This book covers the most attractive problem in robot control, dealing with the direct interaction between a robot and a dynamic environment, including the human-robot physical interaction. It provides comprehensive theoretical and experimental coverage of interaction control problems, starting from the mathematical modeling of robots interacting with complex dynamic environments, and proceeding to various concepts for interaction control design and implementation algorithms at different control layers.



Readership: Researchers, academics and graduate students in robotics and automated systems, dynamical systems, artificial intelligence and fuzzy logic.

660pp **Mar 2009**
978-981-283-475-1 **US\$177 £137**
978-981-283-476-8 (ebook) **US\$230**

INTELLIGENT VEHICLE: Perception, Decision and Action

by **Ming Xie** (Nanyang Technological University, Singapore), **Hui Chen** (Tongji University, China), & **Zhencheng Hu** (Kumamoto University, Japan)

This book provides a broad introduction to the three key modules behind the design and development of intelligent vehicles for the ultimate purpose of actively ensuring driving safety as well as preventing accidents from all possible causes. Self-contained and unified in presentation, the book explains in detail the fundamental solutions of vehicle perception, vehicle decision-making and vehicle action-taking in a pedagogic order.

Besides the fundamental knowledge and concepts of intelligent vehicle's perception, decision and action, this book includes a comprehensive set of real-life application scenarios in which intelligent vehicles will play a major role or contribution. These case studies of real-life applications will help motivate students to learn this exciting subject. With concise and simple explanations, and boasting a rich set of graphical illustrations, the book is an invaluable source for both undergraduate and postgraduate courses, on automotive engineering, mechanical engineering and robotics. In addition, the book will help strengthen the knowledge and skills of young researchers who want to venture into the research and development of intelligent vehicles of the future.

Readership: Advanced undergraduate and graduate students in automotive engineering, mechanical engineering and computer science; researchers and practitioners in automotive industries.

300pp **Sep 2010**
978-981-4271-63-9 **US\$78 £59**
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