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KEY=AND - MELISSA CABRERA

The Playful Machine Theoretical Foundation and Practical Realization of Self-Organizing Robots Springer Science & Business Media Autonomous robots may become our closest companions in the near future. While the technology for physically building such machines is already available today, a problem lies in the generation of the behavior for such complex machines. Nature proposes a solution: young children and higher animals learn to master their complex brain-body systems by playing. Can this be an option for robots? How can a machine be playful? The book provides answers by developing a general principle---homeokinesis, the dynamical symbiosis between brain, body, and environment---that is shown to drive robots to self- determined, individual development in a playful and obviously embodiment- related way: a dog-like robot starts playing with a barrier, eventually jumping or climbing over it; a snakebot develops coiling and jumping modes; humanoids develop climbing behaviors when fallen into a pit, or engage in wrestling-like scenarios when encountering an opponent. The book also develops guided self-organization, a new method that helps to make the playful machines fit for fulfilling tasks in the real world. The book provides two levels of presentation. Students and scientific researchers interested in the field of robotics, self-organization and dynamical systems theory may be satisfied by the in-depth mathematical analysis of the principle, the bootstrapping scenarios, and the emerging behaviors. But the book additionally comes with a robotics simulator inviting also the non- scientific reader to simply enjoy the fabulous world of playful machines by performing the numerous experiments. **Guided Self-Organization: Inception Springer Science & Business Media** Is it possible to guide the process of self-organisation towards specific patterns and outcomes? Wouldn't this be self-contradictory? After all, a self-organising process assumes a transition into a more organised form, or towards a more structured functionality, in the absence of centralised control. Then how can we place the guiding elements so that they do not override rich choices potentially discoverable by an uncontrolled process? This book presents different approaches to resolving this paradox. In doing so, the presented studies address a broad range of phenomena, ranging from autopoietic systems to morphological computation, and from small-world networks to information cascades in swarms. A large variety of methods is employed, from spontaneous symmetry breaking to information dynamics to evolutionary algorithms, creating a rich spectrum reflecting this emerging field. Demonstrating several foundational theories and frameworks, as well as innovative practical implementations, Guided Self-Organisation: Inception, will be an invaluable tool for advanced students and researchers in a multiplicity of fields across computer science, physics and biology, including information theory, robotics, dynamical systems, graph theory, artificial life, multi-agent systems, theory of computation and machine learning. **Neural Computation in Embodied Closed-Loop Systems for the Generation of Complex Behavior: From Biology to Technology Frontiers Media SA** How can neural and morphological computations be effectively combined and realized in embodied closed-loop systems (e.g., robots) such that they can become more like living creatures in their level of performance? Understanding this will lead to new technologies and a variety of applications. To tackle this research question, here, we bring together experts from different fields (including Biology, Computational Neuroscience, Robotics, and Artificial Intelligence) to share their recent findings and ideas and to update our research community. This eBook collects 17 cutting edge research articles, covering neural and morphological computations as well as the transfer of results to real world applications, like prosthesis and orthosis control and neuromorphic hardware implementation. **Robust Artificial Intelligence for Neurorobotics Frontiers Media SA Distributed Autonomous Robotic Systems The 14th International Symposium Springer** This volume of the SPAR series brings the proceedings of the fourteenth edition of the DARS symposium on Distributed Autonomous Robotic Systems, whose proceedings have been published within SPAR since the past edition. This symposium took place in Boulder, CO from October 15th to 17th, 2018. The volume edited by Nikolaus Correll and Mac Schwager contains 36 scientific contributions cutting across planning, control, design, perception, networking, and optimization, all united through the common thread of distributed robotic systems. **Towards Autonomous Robotic Systems 20th Annual Conference, TAROS 2019, London, UK, July 3-5, 2019, Proceedings, Part I Springer** The two volumes LNAI 11649 and LNAI 11650 constitute the refereed proceedings of the 20th Annual Conference "Towards Autonomous Robotics", TAROS 2019, held in London, UK, in July 2019. The 74 full papers and 12 short papers presented were carefully reviewed and selected from 101 submissions. The papers present and discuss significant findings and advances in autonomous robotics research and applications. They are organized in the following topical sections: robotic grippers and manipulation; soft robotics, sensing and mobile robots; robotic learning, mapping and planning; human-robot interaction; and robotic systems and applications. **Bio-Inspired Self-Organizing Robotic Systems Springer** Self-organizing approaches inspired from biological systems, such as social insects, genetic, molecular and cellular systems under morphogenesis, and human mental development, has enjoyed great success in advanced robotic systems that need to work in dynamic and changing environments. Compared with classical control methods for robotic systems, the major advantages of bio-inspired self-organizing robotic systems include robustness, self-repair and self-healing in the presence of system failures and/or malfunctions, high adaptability to environmental changes, and autonomous self-organization and self-reconfiguration without a centralized control. "Bio-inspired Self-organizing Robotic Systems" provides a valuable reference for scientists, practitioners and research students working on developing control algorithms for self-organizing engineered collective systems, such as swarm robotic systems, self-reconfigurable modular robots, smart material based robotic devices, unmanned aerial vehicles, and satellite constellations. **From Animals to Animats 13 13th International Conference on Simulation of Adaptive Behavior, SAB 2014, Castellón, Spain, July 22-25, 2014, Proceedings Springer** This book constitutes the proceedings of the 13th International Conference on Simulation of Adaptive Behavior, SAB 2014, held in Castellón, Spain, in July 2014. The 32 papers presented in this volume were carefully reviewed and selected for inclusion in the proceedings. They cover the main areas in animat research, including the animat approach and methodology, perception and motor control, navigation and internal world models, learning and adaptation, evolution and collective and social behavior. **How to Grow a Robot Developing Human-Friendly, Social AI MIT Press** How to develop robots that will be more like humans and less like computers, more social than machine-like, and more playful and less programmed. Most robots are not very friendly. They vacuum the rug, mow the lawn, dispose of bombs, even perform surgery—but they aren't good conversationalists. It's difficult to make eye contact. If the future promises more human-robot collaboration in both work and play, wouldn't it be better if the robots were less mechanical and more social? In How to Grow a Robot, Mark Lee explores how robots can be more human-like, friendly, and engaging. Developments in artificial intelligence—notably Deep Learning—are widely seen as the foundation on which our robot future will be built. These advances have already brought us self-driving cars and chess match–winning algorithms. But, Lee writes, we need robots that are perceptive, animated, and responsive—more like humans and less like computers, more social than machine-like, and more playful and less programmed. The way to achieve this, he argues, is to "grow" a robot so that it learns from experience—just as infants do. After describing "what's wrong with artificial intelligence" (one key shortcoming: it's not embodied), Lee presents a different approach to building human-like robots: developmental robotics, inspired by developmental psychology and its accounts of early infant behavior. He describes his own experiments with the iCub humanoid robot and its development from "newborn" helplessness to ability levels equal to a nine-month-old, explaining how the iCub learns from its own experiences. AI robots are designed to know humans as objects; developmental robots will learn empathy. Developmental robots, with an internal model of "self," will be better interactive partners with humans. That is the kind of future technology we should work toward. **Intrinsic motivations and open-ended development in animals, humans, and robots Frontiers E-books** The aim of this Research Topic for Frontiers in Psychology under the section of Cognitive Science and Frontiers in Neurorobotics is to present state-of-the-art research, whether theoretical, empirical, or computational investigations, on open-ended development driven by intrinsic motivations. The topic will address questions such as: How do motivations drive learning? How are complex skills built up from a foundation of simpler competencies? What are the neural and computational bases for intrinsically motivated learning? What is the contribution of intrinsic motivations to wider cognition? Autonomous development and lifelong open-ended learning are hallmarks of intelligence. Higher mammals, and especially humans, engage in activities that do not appear to directly serve the goals of survival, reproduction, or material advantage. Rather, a large part of their activity is intrinsically motivated - behavior driven by curiosity, play, interest in novel stimuli and surprising events, autonomous goal-setting, and the pleasure of acquiring new competencies. This allows the cumulative acquisition of knowledge and skills that can later be used to accomplish fitness-enhancing goals. Intrinsic motivations continue during adulthood, and in humans artistic creativity, scientific discovery, and subjective well-being owe much to them. The study of intrinsically motivated behavior has a long history in psychological and ethological research, which is now being reinvigorated by perspectives from neuroscience, artificial intelligence and computer science. For example, recent neuroscientific research is discovering how neuromodulators like dopamine and noradrenaline relate not only to extrinsic rewards but also to novel and surprising events, how brain areas such as the superior colliculus and the hippocampus are involved in the perception and processing of events, novel stimuli, and novel associations of stimuli, and how violations of predictions and expectations influence learning and motivation. Computational approaches are characterizing the space of possible reinforcement learning algorithms and their augmentation by intrinsic reinforcements of different kinds. Research in robotics and machine learning is yielding systems with increasing autonomy and capacity for self-improvement: artificial systems with motivations that are similar to those of real organisms and support prolonged autonomous learning. Computational research on intrinsic motivation is being complemented by, and closely interacting with, research that aims to build hierarchical architectures capable of acquiring, storing, and exploiting the knowledge and skills acquired through intrinsically motivated learning. Now is an important moment in the study of intrinsically motivated open-ended development, requiring contributions and integration across a large number of fields within the cognitive sciences. This Research Topic aims to contribute to this effort by welcoming papers carried out with ethological, psychological, neuroscientific and computational approaches, as well as research that cuts across disciplines and approaches. **Designing Self-Organization in the Physical Realm Frontiers Media SA Swarm Robotics SAB 2004 International Workshop, Santa Monica, CA, USA, July 17, 2004, Revised Selected Papers Springer Science & Business Media** Swarm robotics can be defined as the study of how a swarm of relatively simple physically embodied agents can be constructed to collectively accomplish tasks that are beyond the capabilities of a single one. Unlike other studies on multi-robot systems, swarm robotics emphasizes self-organization and emergence, while keeping in mind the issues of scalability and robustness. These emphases promote the use of relatively simple robots, equipped with localized sensing ability, scalable communication mechanisms, and the exploration of decentralized control strategies. This state-of-the-art survey is the first book devoted to swarm robotics. It is based on the First International Workshop on Swarm Robotics held in Santa Monica, CA, USA in July 2004 as part of SAB 2004 **Swarm Robotics SAB 2004 International Workshop, Santa Monica, CA, USA, July 17, 2004, Revised Selected Papers Springer** Swarm robotics can be defined as the study of how a swarm of relatively simple physically embodied agents can be constructed to collectively accomplish tasks that are beyond the capabilities of a single one. Unlike other studies on multi-robot systems, swarm robotics emphasizes self-organization and emergence, while keeping in mind the issues of scalability and robustness. These emphases promote the use of relatively simple robots, equipped with localized sensing ability, scalable communication mechanisms, and the exploration of decentralized control strategies. This state-of-

the-art survey is the first book devoted to swarm robotics. It is based on the First International Workshop on Swarm Robotics held in Santa Monica, CA, USA in July 2004 as part of SAB 2004 **Distributed Autonomous Robotic Systems Springer Science & Business Media** As a new strategy to realize the goal of flexible, robust, fault-tolerant robotic systems, the distributed autonomous approach has quickly established itself as one of the fastest growing fields in robotics. This book is one of the first to devote itself solely to this exciting area of research, covering such topics as self-organization, communication and coordination, multi-robot manipulation and control, distributed system design, distributed sensing, intelligent manufacturing systems, and group behavior. The fundamental technologies and system architectures of distributed autonomous robotic systems are expounded in detail, along with the latest research findings. This book should prove indispensable not only to those involved with robotic engineering but also to those in the fields of artificial intelligence, self-organizing systems, and coordinated control. **Distributed Autonomous Robotic Systems 2 Springer Science & Business Media** Great interest is now focused on distributed autonomous robotic systems (DARS) as a new strategy for the realization of flexible, robust, and intelligent robots. Inspired by autonomous, decentralized, and self-organizing biological systems, the field of DARS encompasses broad interdisciplinary technologies related not only to robotics and computer engineering but also to biology and psychology. The rapidly growing interest in this new area of research was manifest in the first volume of Distributed Autonomous Robotic Systems, published in 1994. This second volume in the series presents the most recent work by eminent researchers and includes such topics as multirobot control, distributed robotic systems design, self-organizing systems, and sensing and navigation for cooperative robots. Distributed Autonomous Robotic Systems 2 is a valuable source for those whose work involves robotics and will be of great interest to those in the fields of artificial intelligence, self-organizing systems, artificial life, and computer science. **Intelligent Robotics and Applications 6th International Conference, ICIRA 2013, Busan, South Korea, September 25-28, 2013, Proceedings, Part II Springer** This two volume set LNAI 8102 and LNAI 8103 constitutes the refereed proceedings of the 6th International Conference on Intelligent Robotics and Applications, ICIRA 2013, held in Busan, South Korea, in September 2013. The 147 revised full papers presented were carefully reviewed and selected from 184 submissions. The papers discuss various topics from intelligent robotics, automation and mechatronics with particular emphasis on technical challenges associated with varied applications such as biomedical application, industrial automation, surveillance and sustainable mobility. **Molecular Robotics An Introduction Springer Nature** In this book, researchers at the forefront of the field explain the minimum necessary background knowledge and introduce important topics in molecular robotics in an easy-to-understand manner.Molecular robotics is related to many fields, such as systems engineering, control engineering, computer science, biochemistry, biophysics, polymer chemistry, nucleic acid chemistry, molecular biology, and ethics. The whole picture of molecular robotics can be grasped only by looking at these fields from a bird's-eye view. This book has been planned in the belief that such a book is essential for students and those new to the field to understand the ongoing expansion of molecular robotics.The book consists of eight chapters: introduction, design theory of molecular robots, systemization technology, molecular nanotechnology, molecular actuators, molecular materials, medical applications, and social acceptance. In each chapter, the reader can get a general idea of the theory, underlying technology, medical applications, and social issues, and can also understand what is currently being done on the research front. In addition, there are many parts that introduce topics related to molecular robotics. **Sociality and Normativity for Robots Philosophical Inquiries into Human-Robot Interactions Springer** This volume offers eleven philosophical investigations into our future relations with social robots--robots that are specially designed to engage and connect with human beings. The contributors present cutting edge research that examines whether, and on which terms, robots can become members of human societies. Can our relations to robots be said to be "social"? Can robots enter into normative relationships with human beings? How will human social relations change when we interact with robots at work and at home? The authors of this volume explore these questions from the perspective of philosophy, cognitive science, psychology, and robotics. The first three chapters offer a taxonomy for the classification of simulated social interactions, investigate whether human social interactions with robots can be genuine, and discuss the significance of social relations for the formation of human individuality. Subsequent chapters clarify whether robots could be said to actually follow social norms, whether they could live up to the social meaning of care in caregiving professions, and how we will need to program robots so that they can negotiate the conventions of human social space and collaborate with humans. Can we perform joint actions with robots, where both sides need to honour commitments, and how will such new commitments and practices change our regional cultures? The authors connect research in social robotics and empirical studies in Human-Robot Interaction to recent debates in social ontology, social cognition, as well as ethics and philosophy of technology. The book is a response to the challenge that social robotics presents for our traditional conceptions of social interaction, which presuppose such essential capacities as consciousness, intentionality, agency, and normative understanding. The authors develop insightful answers along new interdisciplinary pathways in "robophilosophy," a new research area that will help us to shape the "robot revolution," the distinctive technological change of the beginning 21st century. **Foundations of Robotics A Multidisciplinary Approach with Python and ROS Springer Nature** This open access book introduces key concepts in robotics in an easy to understand language using an engaging project-based approach. It covers contemporary topics in robotics, providing an accessible entry point to fundamentals in all the major domains. A section is dedicated to introducing programming concepts using Python, which has become a language of choice in robotics and AI. The book also introduces the reader to the Robot Operating System (ROS), the ubiquitous software and algorithmic framework used by researchers and the industry. The book provides an inspired, up-to-date and multidisciplinary introduction to robotics in its many forms, including emerging topics related to robotics on Machine Learning, ethics, Human-Robot Interaction, and Design Thinking. The book also includes interviews with industry experts, providing an additional layer of insight into the world of robotics. The book is made open access through the generous support from Kinova Robotics. The book is suitable as an undergraduate textbook in a relevant engineering course. It is also suitable for students in art and design, high school students, and self-learners who would like to explore foundational concepts in robotics. "This book provides the 'foundation' for understanding how robots work. It is the accessible introduction that artists and engineers have been waiting for." - Ken Goldberg, William S. Floyd Jr. Distinguished Chair in Engineering, UC Berkeley. **Autonomous Robots From Biological Inspiration to Implementation and Control MIT Press** An introduction to the science and practice of autonomous robots that reviews over 300 current systems and examines the underlying technology. Autonomous robots are intelligent machines capable of performing tasks in the world by themselves, without explicit human control. Examples range from autonomous helicopters to Roomba, the robot vacuum cleaner. In this book, George Bekey offers an introduction to the science and practice of autonomous robots that can be used both in the classroom and as a reference for industry professionals. He surveys the hardware implementations of more than 300 current systems, reviews some of their application areas, and examines the underlying technology, including control, architectures, learning, manipulation, grasping, navigation, and mapping. Living systems can be considered the prototypes of autonomous systems, and Bekey explores the biological inspiration that forms the basis of many recent developments in robotics. He also discusses robot control issues and the design of control architectures. After an overview of the field that introduces some of its fundamental concepts, the book presents background material on hardware, control (from both biological and engineering perspectives), software architecture, and robot intelligence. It then examines a broad range of implementations and applications, including locomotion (wheeled, legged, flying, swimming, and crawling robots), manipulation (both arms and hands), localization, navigation, and mapping. The many case studies and specific applications include robots built for research, industry, and the military, among them underwater robotic vehicles, walking machines with four, six, and eight legs, and the famous humanoid robots Cog, Kismet, ASIMO, and QRIO. The book concludes with reflections on the future of robotics—the potential benefits as well as the possible dangers that may arise from large numbers of increasingly intelligent and autonomous robots. **CAD/CAM Robotics and Factories of the Future 22nd International Conference, 19th-22nd July 2006 Alpha Science Int'l Ltd.** Presents state-of-the-art research and case studies from over 150 Design Manufacturing professionals across the globe in the areas of:* CAD/CAM* Product Design and Life Cycle Management* Rapid Prototyping and Tooling* Manufacturing Processes* Micromachining and Miniaturisation* Automation* Mechanism and Robotics* Artificial Intelligence* Supply Chain and Logistics Management* Material Handling Systems* Human Aspects in Engineering **Robotics, Mechatronics and Manufacturing Systems Elsevier** One of the most important problems in the field of engineering and technology is the development of so-called intelligent systems, which can perform various intellectual tasks. This book is dedicated to the current progress of research in this vast field and specifically explores the topics of robotics, mechatronics and manufacturing systems. **Multi-Locomotion Robotic Systems New Concepts of Bio-inspired Robotics Springer** Nowadays, multiple attention have been paid on a robot working in the human living environment, such as in the field of medical, welfare, entertainment and so on. Various types of researches are being conducted actively in a variety of fields such as artificial intelligence, cognitive engineering, sensor- technology, interfaces and motion control. In the future, it is expected to realize super high functional human-like robot by integrating technologies in various fields including these types of researches. The book represents new developments and advances in the field of bio-inspired robotics research introducing the state of the art, the idea of multi-locomotion robotic system to implement the diversity of animal motion. It covers theoretical and computational aspects of Passive Dynamic Autonomous Control (PDAC), robot motion control, multi legged walking and climbing as well as brachiation focusing concrete robot systems, components and applications. In addition, gorilla type robot systems are described as hardware of Multi-Locomotion Robotic system. It is useful for students and researchers in the field of robotics in general, bio-inspired robots, multi-modal locomotion, legged walking, motion control, and humanoid robots. Furthermore, it is also of interest for lecturers and engineers in practice building systems cooperating with humans. **Artificial Neural Networks and Machine Learning – ICANN 2017 26th International Conference on Artificial Neural Networks, Alghero, Italy, September 11-14, 2017, Proceedings, Part I Springer** The two volume set, LNCS 10613 and 10614, constitutes the proceedings of then 26th International Conference on Artificial Neural Networks, ICANN 2017, held in Alghero, Italy, in September 2017. The 128 full papers included in this volume were carefully reviewed and selected from 270 submissions. They were organized in topical sections named: From Perception to Action; From Neurons to Networks; Brain Imaging; Recurrent Neural Networks; Neuromorphic Hardware; Brain Topology and Dynamics; Neural Networks Meet Natural and Environmental Sciences; Convolutional Neural Networks; Games and Strategy; Representation and Classification; Clustering; Learning from Data Streams and Time Series; Image Processing and Medical Applications; Advances in Machine Learning. There are 63 short paper abstracts that are included in the back matter of the volume. **How the Body Shapes the Way We Think A New View of Intelligence MIT Press** An exploration of embodied intelligence and its implications points toward a theory of intelligence in general; with case studies of intelligent systems in ubiquitous computing, business and management, human memory, and robotics. How could the body influence our thinking when it seems obvious that the brain controls the body? In How the Body Shapes the Way We Think, Rolf Pfeifer and Josh Bongard demonstrate that thought is not independent of the body but is tightly constrained, and at the same time enabled, by it. They argue that the kinds of thoughts we are capable of have their foundation in our embodiment—in our morphology and the material properties of our bodies. This crucial notion of embodiment underlies fundamental changes in the field of artificial intelligence over the past two decades, and Pfeifer and Bongard use the basic methodology of artificial intelligence—"understanding by building"—to describe their insights. If we understand how to design and build intelligent systems, they reason, we will better understand intelligence in general. In accessible, nontechnical language, and using many examples, they introduce the basic concepts by building on recent developments in robotics, biology, neuroscience, and psychology to outline a possible theory of intelligence. They illustrate applications of such a theory in ubiquitous computing, business and management, and the psychology of human memory. Embodied intelligence, as described by Pfeifer and Bongard, has important implications for our understanding of both natural and artificial intelligence. **Distributed Autonomous Robotic Systems 8 Springer Science & Business Media** The International Symposia on Distributed Autonomous Robotic Systems (DARS) started at Riken, Japan in 1992. Since then, the DARS symposia have been held every two years: in 1994 and 1996 in Japan (Riken, Wako), in 1998 in Germany (Karlsruhe), in 2000 in the USA (Knoxville, TN), in 2002 in Japan (Fukuoka), in 2004 in France (Toulouse), and in 2006 in the USA (Minneapolis, MN). The 9th DARS symposium, which was held during November 17–19 in T- kuba, Japan, hosted 84 participants from 13 countries. The 48 papers presented there were selected through rigorous peer review with a 50% acceptance ratio. Along with three invited talks, they addressed the spreading research fields of DARS, which are classifiable along two streams: theoretical and standard studies of DARS, and interdisciplinary studies using DARS concepts. The former stream includes multi-robot cooperation (task assignment methodology among multiple robots, multi-robot localization, etc.), swarm intelligence, and modular robots. The latter includes distributed sensing, mobiligence, ambient intelligence, and mul- agent systems interaction with human beings. This book not only offers readers the latest research results related to DARS from theoretical studies to application-oriented ones; it also describes the present trends of this field. With the diversity and depth revealed herein, we expect that DARS technologies will flourish soon. **Experimental Robotics VII Springer** Experimental robotics is at the core of validating robotics research for both its system science and theoretical foundations. Robotics experiments serve as a unifying theme for robotics system science and theoretical foundations. This book collects papers on the state of the art in experimental robotics. The papers were presented at the 2000 International Symposium on Experimental Robotics. **Offshore Robotics Volume I Issue 1,**

2021 Springer Nature This journal-like book series includes edited volumes to rapidly report and spread the latest technological results, new scientific discovery and valuable applied researches in the fields concerning offshore robotics as well as promote international academic exchange. We aim to make it one of the premier comprehensive academic publications of world offshore vehicle and robotics community. The audience of the series will include the scholars, researchers, engineers and students who are interested in fields of autonomous marine vehicles and robotics, including autonomous surface vehicles, autonomous underwater vehicles, remote operation vehicles, marine bionics, marine vehicle modeling, guidance, navigation, control and cooperation and so on. **Problem Solving in Organizations A Methodological Handbook for Business and Management Students Cambridge University Press** An indispensable guide enabling business and management students to develop their professional competences in real organizational settings, this new and fully updated edition of Problem Solving in Organizations equips the reader with the necessary toolkit to apply the theory to practical business problems. By encouraging the reader to use the theory and showing them how to do so in a fuzzy, ambiguous and politically charged, real-life organizational context, this book offers a concise introduction to design-oriented and theory-informed problem solving in organizations. In addition, it gives support for designing the overall approach to a problem-solving project as well as support for each of the steps of the problem-solving cycle: problem definition, problem analysis, solution design, interventions, and evaluation. Problem Solving in Organizations is suitable for readers with a wide range of learning objectives, including undergraduates and graduates studying business and management, M.B.A students and professionals working in organizations. **Intelligent Autonomous Systems 6 IOS Press** After a long period, in which the research focused mainly on industrial robotics, nowadays scientists aim to build machines able to act autonomously in unstructured domains, and to interface friendly with humans, while performing intelligently their assigned tasks. Such intelligent autonomous systems are now being intensively developed, and are ready to be applied to every field, from social life to modern enterprises. We believe the following years will be increasingly characterised by their extensive use. This is dramatically changing the whole scenario of human society. **Evolutionary Robotics The Biology, Intelligence, and Technology of Self-Organizing Machines MIT Press** An overview of the basic concepts and methodologies of evolutionary robotics, which views robots as autonomous artificial organisms that develop their own skills in close interaction with the environment and without human intervention. **RoboCup 2003: Robot Soccer World Cup VII Springer** This book constitutes the seventh official archival publication devoted to RoboCup. It documents the achievements presented at the 7th Robot World Cup Soccer and Rescue Competition and Conferences held in Padua, Italy, in July 2003. The 39 revised full papers and 35 revised poster papers presented together with an overview and roadmap for the RoboCup initiative and 3 invited papers were carefully reviewed and selected from 125 symposium paper submissions. This book is mandatory reading for the rapidly growing RoboCup community as well as a valuable source of reference and inspiration for R&D professionals interested in robotics, distributed artificial intelligence, and multi-agent systems. **Robotics Research The Seventh International Symposium Springer Science & Business Media** This publication covers all the topics which are relevant to Advanced Robotics today, ranging from Systems Design to Reasoning and Planning. It is based on the Seventh International Symposium on Robotics Research held in Germany on October, 21 - 24th, 1995. The papers were written by specialists in the field from the United States, Europe, Japan, Australia and Canada. The editors, who also chaired this symposium, present the latest research results as well as new approaches to long standing problems. Robotics Research is a contribution to the emerging concepts, methods and tools that shape Robotics. The papers range from pure research reports to application-oriented studies. The topics covered include: manipulation, control, virtual reality, motion planning, 3D vision and industrial systems' issues. **Robot Intelligence Technology and Applications 3 Results from the 3rd International Conference on Robot Intelligence Technology and Applications Springer** This book covers all aspects of robot intelligence from perception at sensor level and reasoning at cognitive level to behavior planning at execution level for each low level segment of the machine. It also presents the technologies for cognitive reasoning, social interaction with humans, behavior generation, ability to cooperate with other robots, ambience awareness, and an artificial genome that can be passed on to other robots. These technologies are to materialize cognitive intelligence, social intelligence, behavioral intelligence, collective intelligence, ambient intelligence and genetic intelligence. The book aims at serving researchers and practitioners with a timely dissemination of the recent progress on robot intelligence technology and its applications, based on a collection of papers presented at the 3rd International Conference on Robot Intelligence Technology and Applications (RiTA), held in Beijing, China, November 6 - 8, 2014. For better readability, this edition has the total 74 papers grouped into 3 chapters: Chapter I: Ambient, Behavioral, Cognitive, Collective, and Social Robot Intelligence, Chapter II: Computational Intelligence and Intelligent Design for Advanced Robotics, Chapter III: Applications of Robot Intelligence Technology, where individual chapters, edited respectively by Peter Sincak, Hyun Myung, Jun Jo along with Weimin Yang and Jong-Hwan Kim, begin with a brief introduction written by the respective chapter editors. **Rights for Robots Artificial Intelligence, Animal and Environmental Law Routledge** Bringing a unique perspective to the burgeoning ethical and legal issues surrounding the presence of artificial intelligence in our daily lives, the book uses theory and practice on animal rights and the rights of nature to assess the status of robots. Through extensive philosophical and legal analyses, the book explores how rights can be applied to nonhuman entities. This task is completed by developing a framework useful for determining the kinds of personhood for which a nonhuman entity might be eligible, and a critical environmental ethic that extends moral and legal consideration to nonhumans. The framework and ethic are then applied to two hypothetical situations involving real-world technology—animal-like robot companions and humanoid sex robots. Additionally, the book approaches the subject from multiple perspectives, providing a comparative study of legal cases on animal rights and the rights of nature from around the world and insights from structured interviews with leading experts in the field of robotics. Ending with a call to rethink the concept of rights in the Anthropocene, suggestions for further research are made. An essential read for scholars and students interested in robot, animal and environmental law, as well as those interested in technology more generally, the book is a ground-breaking study of an increasingly relevant topic, as robots become ubiquitous in modern society. **Proceedings of the 1992 IEEE International Symposium on Intelligent Control 11-13 August 1992, Forte Crest Glasgow Hotel, Glasgow, Scotland, U.K. Institute of Electrical & Electronics Engineers(IEEE) From Animals to Animats 9 9th International Conference on Simulation of Adaptive Behavior, SAB 2006, Rome, Italy, September 25-29, 2006, Proceedings Springer** This book constitutes the refereed proceedings of the 9th International Conference on Simulation of Adaptive Behavior, SAB 2006. The 35 revised full papers and 35 revised poster papers presented are organized in topical sections on the animat approach to adaptive behaviour, perception and motor control, action selection and behavioral sequences, navigation and internal world models, learning and adaptation, evolution, collective and social behaviours, applied adaptive behavior and more. **Intelligent Robotic Systems CRC Press** A multiplicity of techniques and angles of attack are incorporated in 18 contributions describing recent developments in the structure, architecture, programming, control, and implementation of industrial robots capable of performing intelligent action and decision making. Annotation copyright Book **Service Orientation in Holonic and Multi-Agent Manufacturing and Robotics Springer** This volume gathers the peer reviewed papers which were presented at the third edition of the International Workshop "Service Orientation in Holonic and Multi-agent Manufacturing and Robotics – SOHOMA'13" organized on June 20-22, 2013 by the Centre of Research in Computer Integrated Manufacturing and Robotics – CIMR Bucharest, and hosted by the University of Valenciennes, France. The book is structured in five parts, each one covering a specific research domain which represents a trend for modern manufacturing control: Distributed Intelligence for Sustainable Manufacturing, Holonic and Multi-Agent Technologies for Manufacturing Planning and Control; Service Orientation in Manufacturing Management and Control, Intelligent Products and Product-driven Automation and Robotics for Manufacturing and Services. These five evolution lines have in common concepts related to service orientation in a distributed planning and control agent-based industrial environment; today it is generally recognized that the Service Oriented Enterprise Architecture paradigm has been looked upon as a suitable and effective approach for industrial automation and management of manufacturing enterprises. **Complexity and Self-Organization Frontiers Media SA**