

A Prototype Electrical Actuator For Aircraft Flaps

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More and more researchers engage into investigation of electromagnetic applications, especially these connected with mechatronics, information technologies, medicine, biology and material sciences. It is readily seen when looking at the content of the book that computational techniques, which were under development during the last three decades and are still being developed, serve as good tools for discovering new electromagnetic phenomena. It means that the field of computational electromagnetics belongs to an application area rather than to a research area. This publication aims at joining theory and practice, thus the majority of papers are deeply rooted in engineering problems, being simultaneously of high theoretical level. The editors hope to touch the heart of the matter in electromagnetism. The book focuses on the following issues: Computational Electromagnetics; Electromagnetic Engineering; Coupled Field and Special Applications; Micro- and Special Devices; Bioelectromagnetics and Electromagnetic Hazard; and Magnetic Material Modelling.

Abstracted in Inspec

This book brings together some recent advances and development in robotics. In 12 chapters, written by experts and researchers in respective fields, the book presents some up-to-date research ideas and findings in a wide range of robotics, including the design, modeling, control, learning, interaction, and navigation of robots. From an application perspective, the book covers UAVs, USVs, mobile robots, humanoid robots, graspers, and underwater robots. The unique text offers practical guidance to graduate students and researchers in research and applications in the field of robotics.

Actuators are devices that convert electrical energy into mechanical work, traditionally used in electrical, pneumatic and hydraulic systems. As the demand for actuator technologies grows in biomedical, prosthetic and orthotic applications, there is an increasing need for complex and sophisticated products that perform efficiently also when scaled to micro and nano domains. Providing a comprehensive overview of actuators for novel applications, this excellent book: * Presents a mechatronic approach to the design, control and integration of a range of technologies covering piezoelectric actuators, shape memory actuators, electro-active polymers, magnetostrictive actuators and electro- and magnetorheological actuators. * Examines the characteristics and performance of emerging actuators upon scaling to micro and nano domains. * Assesses the relative merits of each actuator technology and outlines prospective application fields. Offering a detailed analysis on current advances in the field, this publication will appeal to practising electrical and electronics engineers developing novel actuator systems. Mechanical and automation engineers, computer scientists and researchers will also find this a useful resource.

Based on author Ion Boldea's 40 years of experience and the latest research, Linear Electric Machines, Drives, and Maglevs Handbook provides a practical and comprehensive resource on the steady improvement in this field. The book presents in-depth reviews of basic concepts and detailed explorations of complex subjects, including classifications and practical topologies, with sample results based on an up-to-date survey of the field. Packed with case studies, this state-of-the-art handbook covers topics such as modeling, steady state, and transients as well as control, design, and testing of linear machines and drives. It includes discussion of types and applications—from small compressors for refrigerators to MAGLEV transportation—of linear electric machines. Additional topics include low and high speed linear induction or synchronous motors, with and without PMs, with progressive or oscillatory linear motion, from topologies through modeling, design, dynamics, and control. With a breadth and depth of coverage not found in currently available references, this book includes formulas and methods that make it an authoritative and comprehensive resource for use in R&D and testing of innovative solutions to new industrial challenges in linear electric motion/energy automatic control.

Innovative Developments in Virtual and Physical Prototyping presents essential research in the area of Virtual and Rapid Prototyping. The volume contains reviewed papers presented at the 5th International Conference on Advanced Research in Virtual and Rapid Prototyping, hosted by the Centre for Rapid and Sustainable Product Development of the Polyt Electric Drives and Electromechanical Devices: Applications and Control, Second Edition, presents a unified approach to the design and application of modern drive system. It explores problems involved in assembling complete, modern electric drive systems involving mechanical, electrical, and electronic elements. This book provides a global overview of design, specification applications, important design information, and methodologies. This new edition has been restructured to present a seamless, logical discussion on a wide range of topical problems relating to the design and specification of the complete motor-drive system. It is organised to establish immediate solutions to specific application problem. Subsidiary issues that have a considerable impact on the overall performance and reliability, including environmental protection and costs, energy efficiency, and cyber security, are also considered. Presents a comprehensive consideration of electromechanical systems with insights into the complete drive system, including required sensors and mechanical components Features in-depth discussion of control schemes, particularly focusing on practical operation Includes extensive references to modern application domains and real-world case studies, such as

electric vehicles Considers the cyber aspects of drives, including networking and security

A multidisciplinary view of the field of actuators. The goal of the book is to provide a comprehensive overview of the properties, applications, and potential applications of traditional and unconventional actuators, together with their corresponding power electronics.

This book contains the proceedings of the ROBOT 2013: FIRST IBERIAN ROBOTICS CONFERENCE and it can be said that included both state of the art and more practical presentations dealing with implementation problems, support technologies and future applications. A growing interest in Assistive Robotics, Agricultural Robotics, Field Robotics, Grasping and Dexterous Manipulation, Humanoid Robots, Intelligent Systems and Robotics, Marine Robotics, has been demonstrated by the very relevant number of contributions. Moreover, ROBOT2013 incorporates a special session on Legal and Ethical Aspects in Robotics that is becoming a topic of key relevance. This Conference was held in Madrid (28-29 November 2013), organized by the Sociedad Española para la Investigación y Desarrollo en Robótica (SEIDROB) and by the Centre for Automation and Robotics - CAR (Universidad Politécnica de Madrid (UPM) and Consejo Superior de Investigaciones Científicas (CSIC)), along with the co-operation of Grupo Temático de Robótica CEA-GTRob, "Sociedade Portuguesa de Robotica" (SPR), "Asociación Española de Promoción de la Investigación en Agentes Físicos" (RedAF), and partially supported by "Comunidad de Madrid under RoboCity2030 Programme".

The book promotes new research results in the field of modern actuators and their applications. New coverage of dielectric barrier discharge plasma actuators, polymeric microgripper based on the cascaded V-shaped electrothermal actuators, ionic polymer actuators, wideband actuators and energy harvesters, electromagnetic actuators and shape memory alloy actuators are comprehended. The book is structured in four sections: design, fabrication and simulation; control systems; medical applications and fault detection. Seven chapters are published following a rigorous selection process. In the first section, a study carried out to investigate experimentally and by numerical simulations a microscale plasma actuator; the design, fabrication, numerical simulations, and experimental investigations of a polymeric microgripper designed using the cascaded V-shaped electrothermal actuators; a review of the development of ionic polymer actuator with introduction of two kinds of typical polymer actuators - ionic polymer-metal composites and bucky gel actuator - with their basic principle and fabrication process and typical applications and a methodology of designing and testing wideband actuators and energy harvesters, treated as one mechanical resonator, with a discussion on shock harvester, resonant harvester and energy transmission system, are presented. The second section has a chapter dedicated to modeling, system identification and control of electromagnetic actuators with main focus on the actuators used in magnetic levitation, in fuel injection systems and in variable valve timing. The third section presents a study focused on quantifying the decline in tactile sensation associated with diabetic neuropathy and developed a measurement device that used a thin-shaped memory alloy wire as the actuator. The fourth section includes a chapter presenting a two-level fault diagnosis and root-cause analysis scheme for a class of interconnected invertible dynamic systems, which aims at detecting and identifying actuator fault and causes.

The beneficial impact of the European communities involvement in scientific research and technology is wide-ranging and pervasive. There are high hopes of major advances in scientific knowledge and technological processes, while the emergence of a genuine tradition of collaborative research holds out great and continuing promise for the future. Close, frequent and long-term cooperation between universities, research centres and industry is already generating new synergies, forging a truly European scientific community. Many of tomorrows industrial developments, destined to be determinant for our economic success and prosperity, will spring from this research. The Concerted European Action on Magnets - CEAM - project is a prime example of collaborative research and development. Financed from the Communities STIMULATION action and implemented with the help of EURAM, the advanced materials programme, CEAM will bestow great benefits on European industrial competitiveness, providing a channel for high quality basic research to find its way into commercial products. This remarkable cooperative enterprise brought together 58 laboratories and more than 120 scientists and engineers in a sustained thirty month effort. It spanned every aspect of new iron-based high performance magnets from theoretical modelling of their intrinsic magnetic properties to the design and construction of novel electrical devices and machines. Besides adding a new European dimension to advanced magnetic technology, CEAM also ensured that a whole new generation of young researchers and technicians have been trained in applied magnetism.

Parallel robots are closed-loop mechanisms presenting very good performances in terms of accuracy, velocity, rigidity and ability to manipulate large loads. They have been used in a large number of applications ranging from astronomy to flight simulators and are becoming increasingly popular in the field of machine-tool industry. This book presents a complete synthesis of the latest results on the possible mechanical architectures, analysis and synthesis of this type of mechanism. It is intended to be used by students (with over 150 exercises and numerous internet addresses), researchers (with over 650 references and anonymous ftp access to the code of some algorithms presented in this book) and engineers (for which practical results, mistakes to avoid, and applications are presented). Since the publication of the first edition (2000) there has been an impressive increase in terms of study and use of this kind of structure that are reported in this book. This second edition has been completely overhauled. The initial chapter on kinematics has been split into Inverse Kinematics and Direct Kinematics. A new chapter on calibration was added. The other chapters have also been rewritten to a large extent. The reference section has been updated to include around 45% new works that appeared after the first edition.

Dielectric Elastomers as Electromechanical Transducers provides a comprehensive and updated insight into dielectric elastomers; one of the most promising classes of polymer-based smart materials and technologies. This technology can be used in a very broad range of applications, from robotics and automation to the biomedical field. The need for

improved transducer performance has resulted in considerable efforts towards the development of devices relying on materials with intrinsic transduction properties. These materials, often termed as "smart or "intelligent", include improved piezoelectrics and magnetostrictive or shape-memory materials. Emerging electromechanical transduction technologies, based on so-called ElectroActive Polymers (EAP), have gained considerable attention. EAP offer the potential for performance exceeding other smart materials, while retaining the cost and versatility inherent to polymer materials. Within the EAP family, "dielectric elastomers", are of particular interest as they show good overall performance, simplicity of structure and robustness. Dielectric elastomer transducers are rapidly emerging as high-performance "pseudo-muscular actuators, useful for different kinds of tasks. Further, in addition to actuation, dielectric elastomers have also been shown to offer unique possibilities for improved generator and sensing devices. Dielectric elastomer transduction is enabling an enormous range of new applications that were precluded to any other EAP or smart-material technology until recently. This book provides a comprehensive and updated insight into dielectric elastomer transduction, covering all its fundamental aspects. The book deals with transduction principles, basic materials properties, design of efficient device architectures, material and device modelling, along with applications. Concise and comprehensive treatment for practitioners and academics Guides the reader through the latest developments in electroactive-polymer-based technology Designed for ease of use with sections on fundamentals, materials, devices, models and applications Issues in Electronics Research and Application: 2011 Edition Scholarly Editions

The RO MAN SY Symposia have played an important role in the development of the theory and, to a lesser extent, the practice of manipulators, walking machines and robots. Based on past experience of previous symposia, which have been held over the last 10 years, the problem arose as to what to do in the future. In other words, in what direction should further symposia be organized? A panel discussion called 'Role of RO MAN SY Symposia' was held on 29 June 1984 during the final plenary session at CISM, Udine, Italy. The Members of the Organizing Committee, Professors Konstantinov, Morecki, Roth, Vukobratovic and Vertut, and other participants were asked to give their opinions on the following important questions: • should we organize future symposia? if we continue, which form should we choose?: small (60-70 participants, • 35-40 invited papers); big (100-150 participants, 60-80 papers) • what kind of topics should be included?: the more theoretical-oriented; more practical-oriented; both (what proportion?) • how frequently should RO MAN SY Symposia be organized?: every other year; every third year is working well and what should be maintained? • what • what is not working well and what should be changed to increase the impact of the symposia? would like to underline that most of the participants agree that we should continue to hold our symposia every other year, but to limit their small form, with invited papers at high theoretical level only in mechanics, control of motion,

The robotic mechanism and its controller make a complete system. As the robotic mechanism is reconfigured, the control system has to be adapted accordingly. The need for the reconfiguration usually arises from the changing functional requirements. This book will focus on the adaptive control of robotic manipulators to address the changed conditions. The aim of the book is to summarise and introduce the state-of-the-art technologies in the field of adaptive control of robotic manipulators in order to improve the methodologies on the adaptive control of robotic manipulators. Advances made in the past decades are described in the book, including adaptive control theories and design, and application of adaptive control to robotic manipulators.

Smart (intelligent) structures have been the focus of a great deal of recent research interest. In this book, leading researchers report the state of the art and discuss new ideas, results and trends in 43 contributions, covering fundamental research issues, the role of intelligent monitoring in structural identification and damage assessment, the potential of automatic control systems in achieving a desired structural behaviour, and a number of practical issues in the analysis and design of smart structures in mechanical and civil engineering applications. Audience: A multidisciplinary reference for materials scientists and engineers in such areas as mechanical, civil, aeronautical, electrical, control, and computer engineering.

"Design Rules for Actuators in Active Mechanical Systems" deals with the formulation of model-based design rules to be used in the conception of optimized mechatronic and adaptronic systems. The book addresses the comparison of different actuator classes for given applications and offers answers to the following questions: What is the relationship between actuator geometry and primary output quantities? How scalable are actuators based on the same principle? How are energetic output quantities (work and power) related to mechanical load and geometry? How should actuators be designed and sized to obtain the best performance for the chosen actuator kind, and for a given application? "Design Rules for Actuators in Active Mechanical Systems" will be of use to industry professionals, such as actuator and machine designers, as well as to researchers and students of mechanical engineering, mechatronics, and electrical engineering. Origins -- If it flies, it must be electric! -- Electricity goes to war -- The aeromodelers -- "Here comes the sun" -- The lithium advantage -- "H" is for hybrid, hydrogen, helium -- Towards commercialization -- UAVs (generation gas) -- UAV (aka drones) go electric -- Dronomania! -- Flying cars -- Into the future

Novel Algorithms and Techniques in Telecommunications, Automation and Industrial Electronics includes a set of rigorously reviewed world-class manuscripts addressing and detailing state-of-the-art research projects in the areas of Industrial Electronics, Technology and Automation, Telecommunications and Networking. Novel Algorithms and Techniques in Telecommunications, Automation and Industrial Electronics includes selected papers from the conference proceedings of the International Conference on Industrial Electronics, Technology and Automation (IETA 2007) and International Conference on Telecommunications and Networking (TeNe 07) which were part of the International Joint Conferences on Computer, Information and Systems Sciences and Engineering (CISSE 2007).

The objective of this book is to provide those interested in the field of flexible robotics with an overview of several scientific and technological advances in the practical field of robotic manipulation. The different chapters examine various

stages that involve a number of robotic devices, particularly those designed for manipulation tasks characterized by mechanical flexibility. Chapter 1 deals with the general context surrounding the design of functionally integrated microgripping systems. Chapter 2 focuses on the dual notations of modal commandability and observability, which play a significant role in the control authority of vibratory modes that are significant for control issues. Chapter 3 presents different modeling tools that allow the simultaneous use of energy and system structuring notations. Chapter 4 discusses two sensorless methods that could be used for manipulation in confined or congested environments. Chapter 5 analyzes several appropriate approaches for responding to the specific needs required by versatile prehension tasks and dexterous manipulation. After a classification of compliant tactile sensors focusing on dexterous manipulation, Chapter 6 discusses the development of a compliant triaxial force sensor based on piezoresistive technology. Chapter 7 deals with the constraints imposed by submicrometric precision in robotic manipulation. Chapter 8 presents the essential stages of the modeling, identification and analysis of control laws in the context of serial manipulator robots with flexible articulations. Chapter 9 provides an overview of models for deformable body manipulators. Finally, Chapter 10 presents a set of contributions that have been made with regard to the development of methodologies for identification and control of flexible manipulators based on experimental data.

Contents

1. Design of Integrated Flexible Structures for Micromanipulation, Mathieu Grossard, Mehdi Boukallel, Stéphane Régnier and Nicolas Chaillet.
2. Flexible Structures' Representation and Notable Properties in Control, Mathieu Grossard, Arnaud Hubert, Stéphane Régnier and Nicolas Chaillet.
3. Structured Energy Approach for the Modeling of Flexible Structures, Nandish R. Calchand, Arnaud Hubert, Yann Le Gorrec and Hector Ramirez Estay.
4. Open-Loop Control Approaches to Compliant Micromanipulators, Yassine Haddab, Vincent Chalvet and Micky Rakotondrabe.
5. Mechanical Flexibility and the Design of Versatile and Dexterous Grippers, Javier Martin Amezaga and Mathieu Grossard.
6. Flexible Tactile Sensors for Multidigital Dexterous In-hand Manipulation, Mehdi Boukallel, Hanna Yousef, Christelle Godin and Caroline Coutier.
7. Flexures for High-Precision Manipulation Robots, Reymond Clavel, Simon Henein and Murielle Richard.
8. Modeling and Motion Control of Serial Robots with Flexible Joints, Maria Makarov and Mathieu Grossard.
9. Dynamic Modeling of Deformable Manipulators, Frédéric Boyer and Ayman Belkhir.
10. Robust Control of Robotic Manipulators with Structural Flexibilities, Housseem Halalchi, Loïc Cuvillon, Guillaume Mercère and Edouard Laroche.

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The microelectromechanical systems (MEMS) industry has experienced explosive growth over the last decade. Applications range from accelerometers and gyroscopes used in automotive safety to high-precision on-chip integrated oscillators for reference generation and mobile phones. MEMS: Fundamental Technology and Applications brings together groundbreaking research in MEMS technology and explores an eclectic set of novel applications enabled by the technology. The book features contributions by top experts from industry and academia from around the world. The contributors explain the theoretical background and supply practical insights on applying the technology. From the historical evolution of nano micro systems to recent trends, they delve into topics including: Thin-film integrated passives as an alternative to discrete passives The possibility of piezoelectric MEMS Solutions for MEMS gyroscopes Advanced interconnect technologies Ambient energy harvesting Bulk acoustic wave resonators Ultrasonic receiver arrays using MEMS sensors Optical MEMS-based spectrometers The integration of MEMS resonators with conventional circuitry A wearable inertial and magnetic MEMS sensor assembly to estimate rigid body movement patterns Wireless microactuators to enable implantable MEMS devices for drug delivery MEMS technologies for tactile sensing and actuation in robotics MEMS-based micro hot-plate devices Inertial measurement units with integrated wireless circuitry to enable convenient, continuous monitoring Sensors using passive acousto-electric devices in wired and wireless systems Throughout, the contributors identify challenges and pose questions that need to be resolved, paving the way for new applications. Offering a wide view of the MEMS landscape, this is an invaluable resource for anyone working to develop and commercialize MEMS applications. Mobile robotics is a challenging field with great potential. It covers disciplines including electrical engineering, mechanical engineering, computer science, cognitive science, and social science. It is essential to the design of automated robots, in combination with artificial intelligence, vision, and sensor technologies. Mobile robots are widely used for surveillance, guidance, transportation and entertainment tasks, as well as medical applications. This Special Issue intends to concentrate on recent developments concerning mobile robots and the research surrounding them to enhance studies on the fundamental problems observed in the robots. Various multidisciplinary approaches and integrative contributions including navigation, learning and adaptation, networked system, biologically inspired robots and cognitive methods are welcome contributions to this Special Issue, both from a research and an application perspective.

This book gathers together papers presented at the 26th IAVSD Symposium on Dynamics of Vehicles on Roads and Tracks, held on August 12 – 16, 2019, at the Lindholmen Conference Centre in Gothenburg, Sweden. It covers cutting-edge issues related to vehicle systems, including vehicle design, condition monitoring, wheel and rail contact, automated driving systems, suspension and ride analysis, and many more topics. Written by researchers and practitioners, the book offers a timely reference guide to the field of vehicle systems dynamics, and a source of inspiration for future research and collaborations.

Like the previous editions also the third edition of this book combines the detailed physical modeling of mechatronic systems and their precise numerical simulation using the Finite Element (FE) method. Thereby, the basic chapter concerning the Finite Element (FE) method is enhanced, provides now also a description of higher order finite elements (both for nodal and edge finite elements) and a detailed discussion of non-conforming mesh techniques. The author enhances and improves many discussions on principles and methods. In particular, more emphasis is put on the description of single fields by adding the flow field. Corresponding to these field, the book is augmented with the new chapter about coupled flow-structural mechanical systems. Thereby, the discussion of computational aeroacoustics is extended towards perturbation approaches, which allows a decomposition of flow and acoustic quantities within the flow region. Last but not least, applications are updated and restructured so that the book meets modern demands.

This publication contains a selection of 124 papers among the 165 full-length contributions which were submitted on-site at ISEM

2003. The objective of the symposia series is to vigorously promote the research in the field of electro-mechanical systems. The reader will, we hope, appreciate the variety of topics that were addressed. This is what makes ISEM so stimulating for whoever is interested in the applications of electromagnetics and its opening toward many technical fields. Yet, this publication does not intend to be a mosaic of sub-disciplines, but aims at their integration and synergy. This will be demonstrated by the present selection.

The objective of the present book, which tries to summarize in an edited format and in a fairly comprehensive manner, many of the recent technical research accomplishments in the area of Smart Actuators and Smart Sensors, is to combine researchers and scientists from different fields into a single virtual room. The book hence reflects the multicultural nature of the field and will allow the reader to taste and appreciate different points of view, different engineering methods and different tools that must be jointly considered when designing and realizing smart actuation and sensing systems.

By the dawn of the new millennium, robotics has undergone a major transformation in scope and dimensions. This expansion has been brought about by the maturity of the field and the advances in its related technologies. From a largely dominant industrial focus, robotics has been rapidly expanding into the challenges of the human world. The new generation of robots is expected to safely and dependably co-habitat with humans in homes, workplaces, and communities, providing support in services, entertainment, education, healthcare, manufacturing, and assistance. Beyond its impact on physical robots, the body of knowledge robotics has produced is revealing a much wider range of applications reaching across diverse research areas and scientific disciplines, such as: biomechanics, haptics, neuro-ences, virtual simulation, animation, surgery, and sensor networks among others. In return, the challenges of the new emerging areas are proving an abundant source of stimulation and insights for the field of robotics. It is indeed at the intersection of disciplines that the most striking advances happen. The goal of the 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. Transportation systems play a major role in the reduction of energy consumptions and environmental impact all over the world.

The significant amount of energy of transport systems forces the adoption of new solutions to ensure their performance with energy-saving and reduced environmental impact. In this context, technologies and materials, devices and systems, design methods, and management techniques, related to the electrical power systems for transportation are continuously improving thanks to research activities. The main common challenge in all the applications concerns the adoption of innovative solutions that can improve existing transportation systems in terms of efficiency and sustainability.

Giving fundamental information on one of the most promising families of smart materials, electroactive polymers (EAP) this exciting new titles focuses on the several biomedical applications made possible by these types of materials and their related actuation technologies. Each chapter provides a description of the specific EAP material and device configuration used, material processing, device assembling and testing, along with a description of the biomedical application. Edited by well-respected academics in the field of electroactive polymers with contributions from renowned international experts, this is an excellent resource for industrial and academic research scientists, engineers, technicians and graduate students working with polymer actuators or in the fields of polymer science.

This book is the first comprehensive collection of electronic aspects of different kinds of elastomer composites, including combinations of synthetic, natural and thermoplastic elastomers with different conducting fillers like metal nanoparticles, carbon nanotubes, or graphenes, and many more. It covers elastomer composites, which are useful in electronic applications, including chemical and physical as well as material science aspects. The presented elastomer composites have great potential for solving emerging new material application requirements, for example as flexible and wearable electronics. The book is structured and organized by the rubber/elastomer type: each chapter describes a different elastomer matrix and its composites. While introducing to important fundamentals, it is application-oriented, discussing the current issues and challenges in the field of elastomer composites. This book will thus appeal to researchers and scientists, to engineers and technologists, but also to graduate students, working on elastomer composites, or on electronics engineering with the composites, providing the readers with a sound introduction to the field and solutions to both fundamental and applied problems.

This book offers a snapshot of recent developments in improving the properties and performance of engineering materials and structures. It discusses modeling properties related to classical mechanical, thermal, electrical and optical fields as well as those related to surface-specific quantities (e.g. roughness, wear and modifications due to surface coatings). The material types presented range from classical metals and synthetic materials to composites. Competitiveness due to cost efficiency (e.g. lighter structures and the corresponding fuel savings for transportation systems) and sustainability (e.g. recyclability or reusability) are the driving factors for engineering developments. The outcomes of these efforts are difficult to be accurately monitored due to the ongoing evaluation cycles.

The proceedings provide state-of-the-art scientific and engineering research findings and developments in the area of mobile robotics and assistive technologies. The proceedings collected together peer reviewed articles presented at the CLAWAR 2013 conference. It contains a strong showing of articles on legged locomotion with numbers of legs from two onwards. There is also a good collection of articles on systems that walls climbing, poles balancing, and other more complex structures following the traditional of CLAWAR themes. In addition, the proceedings also cover the subject of robot-human interaction, which focus on a more "human" way of communicating with humanoid robots. As for human assistive devices, proceedings also cover exoskeletal and prosthetic devices, robots for personal and nursing cares to address the issues of ageing population in our society. Finally, the issue of the deployment of robots in society, its social and ethically consideration are also addressed in the proceedings.

Contents:Plenary PresentationsAssistive RoboticsAutonomous RobotsBiologically-Inspired Systems and SolutionsHMI, Inspection and LearningInnovative Design of CLAWARLocomotionManipulation and GrippingModelling and Simulation of CLAWARPlanning and ControlPositioning, Localization and PerceptionSensing and Sensor FusionService Robot Standards and Standardization
Readership: Systems and control engineers, electrical engineers, mechanical engineers in academic, research and industrial settings; engineers and practitioners in the public services sectors in health care, manufacturing, supply and delivery services.
Keywords:Assistive Robotics;Autonomous Robots;Biologically Inspired Robotics;CLAWAR;Climbing and Walking Robots;Design of CLAWAR;Hybrid Locomotion;Legged Locomotion;Mobile Robots;Modeling and Simulation;Planning and Control;Robot Standardization;Service Robotics;Wheeled Locomotion

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