Automates Et Robots

Engineering Autonomous Vehicles and RobotsRobotics and automation for improving agricultureWearable Sensors and RobotsMachine Ethics and Robot EthicsEmergence of Cyber Physical System and IoT in Smart Automation and RoboticsField and Service RoboticsBiomechanics, Sensing and Bio-inspired Control in Rehabilitation and Wearable RoboticsActive Vision and Perception in Human-Robot CollaborationRobotics, Autonomous Systems and AI for Nonurgent/Nonemergent Healthcare Delivery During and After the COVID-19 PandemicAdvances in Reconfigurable Mechanisms and Robots IIApplied Mathematical Modeling for Biomedical Robotics and Wearable DevicesAdvances in Modelling and Control of Soft RobotsAI and Blockchain Applications in Industrial RoboticsFrontiers in Robotics and AI editor's picks 2024Interfacing Humans and Robots for Gait Assistance and RehabilitationResponsible Robotics: Identifying and Addressing Issues of Ethics, Fairness, Accountability, Transparency, Privacy and EmploymentCreativity and RoboticsFrontiers in Robotics and AI editor's picks 2023Human Factors and Cognitive Ergonomics in Advanced Industrial Human-Robot InteractionAdvances in Reconfigurable Mechanisms and Robots I Shaoshan Liu Prof John Billingsley Canjun Yang Wendell Wallach Krishna Kant Singh Alexander Zelinsky Wujing Cao Dimitri Ognibene Mahdi Tavakoli Xilun Ding S. Sountharrajan Concepción A. Monje Biradar, Rajashekhar C. Carlos A. Cifuentes Martim Brandão Patricia Alves-Oliveira Kostas J. Kyriakopoulos Luca Gualtieri Jian S Dai

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Responsible Robotics: Identifying and Addressing Issues of Ethics, Fairness, Accountability, Transparency, Privacy and Employment Creativity and Robotics Frontiers in Robotics and AI editor's picks 2023 Human Factors and Cognitive Ergonomics in Advanced Industrial Human-Robot Interaction Advances in Reconfigurable Mechanisms and Robots I Shaoshan Liu Prof John Billingsley Canjun Yang Wendell Wallach Krishna Kant Singh Alexander Zelinsky Wujing Cao Dimitri Ognibene Mahdi Tavakoli Xilun Ding S. Sountharrajan Concepción A. Monje Biradar, Rajashekhar C. Carlos A. Cifuentes Martim Brandão Patricia Alves-Oliveira Kostas J. Kyriakopoulos Luca Gualtieri Jian S Dai

offers a step by step guide to building autonomous vehicles and robots with source code and accompanying videos the first book of its kind on the detailed steps for creating an autonomous vehicle or robot this book provides an overview of the technology and introduction of the key elements involved in developing autonomous vehicles and offers an excellent introduction to the basics for someone new to the topic of autonomous vehicles and the innovative modular based engineering approach called dragonfly engineering autonomous vehicles and robots the dragonfly modular based approach covers everything that technical professionals need to know about can bus chassis sonars radars gnss computer vision localization perception motion planning and more particularly it covers computer vision for active perception and localization as well as mapping and motion planning the book offers several case studies on the building of an autonomous passenger pod bus and vending robot it features a large amount of supplementary material including the standard protocol and sample codes for chassis sonar and radar gpsd protocol nmea protocol and gps deployment methods are also provided most importantly readers will learn the philosophy behind the dragonfly modular based design approach which empowers readers to design and build their own autonomous vehicles and robots with flexibility and affordability offers progressive guidance on building autonomous vehicles and robots provides detailed steps and codes to create an autonomous machine at affordable cost and with a modular approach written by one of the pioneers in the field building autonomous vehicles includes case studies source code and state of the art research results accompanied by a website with supplementary material including sample code for chassis sonar radar gps deployment methods vision calibration methods engineering autonomous vehicles and robots is an excellent book for students researchers and practitioners in the field of autonomous vehicles and robots

primary focus on developing fully autonomous robotic systems in agriculture comprehensive review of advances in the key technologies underpinning agricultural robotics particularly strong coverage of the applications of agricultural robotics in different

aspects of crop management from planting to harvesting

these proceedings present the latest information on regulations and standards for medical and non medical devices including wearable robots for gait training and support design of exoskeletons for the elderly innovations in assistive robotics and analysis of human machine interactions taking into account ergonomic considerations the rapid development of key mechatronics technologies in recent years has shown that human living standards have significantly improved and the international conference on wearable sensor and robot was held in hangzhou china from october 16 to 18 2015 to present research mainly focused on personal care robots and medical devices the aim of the conference was to bring together academics researchers engineers and students from across the world to discuss state of the art technologies related to various aspects of wearable sensors and robots div

once the stuff of science fiction recent progress in artificial intelligence robotics and machine learning means that these rapidly advancing technologies are finally coming into widespread use within everyday life such rapid development in these areas also brings with it a host of social political and legal issues as well as a rise in public concern and academic interest in the ethical challenges these new technologies pose this volume is a collection of scholarly work from leading figures in the development of both robot ethics and machine ethics it includes essays of historical significance which have become foundational for research in these two new areas of study as well as important recent articles the research articles selected focus on the control and governance of computational systems the exploration of ethical and moral theories using software and robots as laboratories or simulations inquiry into the necessary requirements for moral agency and the basis and boundaries of rights and questions of how best to design systems that are both useful and morally sound collectively the articles ask what the practical ethical and legal issues arising from the development of robots will be over the next twenty years and how best to address these future considerations

cyber physical systems cps integrate computing and communication capabilities by monitoring and controlling the physical systems via embedded hardware and computers this book brings together new and futuristic findings on iot cyber physical systems and robotics leading towards automation and solving issues of various critical applications in real time the book initially overviews the concepts of iot iiot and cyber physical systems followed by various critical applications and discusses the latest designs and developments that provide common solutions for the convergence of technologies in addition the book specifies methodologies

algorithms and other relevant architectures in various fields that include automation robotics smart agriculture and industry 4 0 the book is intended for practitioners enterprise representatives scientists students and ph d scholars in hopes of steering research further towards cyber physical systems design and development and implementation across various domains additionally this book can be used as a secondary reference or rather one stop guide by professionals for real life implementation of cyber physical systems the book highlights a critical coverage of various domains iot cyber physical systems industry 4 0 smart automation and related critical applications advanced elaborations for target audiences to understand the conceptual methodology and future directions of cyber physical systems and iot an approach towards research orientations to enable researchers to point out areas and scope for implementation of cyber physical systems in several domains for better productivity

joe engelberger the pioneer of the robotics industry wrote in his 1989 book robotics in service that the inspiration to write his book came as a reaction to an industry sponsored forecast study of robot applications which predicted that in 1995 applications of robotics outside factories the traditional domain of industrial robots would amount to less than 1 of total sales engelberger believed that this forecast was very wrong and instead predicted that the non industrial class of robot applications would become the largest class engelbergers prediction has yet to come to pass however he did correctly foresee the growth in non traditional applications of robots robots are now beginning to march from the factories and into field and service applications this book presents a selection of papers from the first major international conference dedicated to field and service applications of robotics this selection includes papers from the leading research laboratories in the world together with papers from companies that are building and selling new and innovative robotic technology it describes interesting aspects of robots in the field ranging from mining agriculture construction cargo handling subsea operations removal of landmines to terrestrial exploration it also covers a diverse range of service applications such as cleaning propagating plants and aiding the elderly and handicapped and gives considerable attention to the technology required to realise robust reliable and safe robots

research on biomechanics sensing and bio inspired control is vital for progressing rehabilitation and wearable robotics biomechanical simulation can provide the theoretical basis for device design and optimize the design and control scheme the fusion of bio signals neural signals and physical signals is helpful for accurate perception and recognition of human motion intention bio inspired control is an important direction of individualized and efficient assistance of rehabilitation and wearable robotics in recent years with the

development of biomedical and information technology the equipment used for information acquisition has been updated from cumbersome and immobile devices to small and portable ones making integration with rehabilitation and wearable robotics easier moreover the performance of rehabilitation and wearable robotics can be quantified by changes in biomechanics and through the use of biosensors the proposed research topic invites theoretical and experimental research dealing with novel techniques for quantifying biomechanics sensing and bio inspired control in rehabilitation and wearable robotics for example the use of biologically inspired actuators no longer requires rigid supports as the skeletal system can be used to that end the application of synergies or motor primitives has led to a reduction in the number of actuators or to improve their control the latest advances in modeling and simulation made it possible to assess and control fatigue or simulate using such devices outside of a clinical environment these research achievements enable a new generation of rehabilitation and wearable robotics

this book presents the most recent advances in the research and applications of reconfigurable mechanisms and robots it collects 93 independently reviewed papers presented at the third asme iftomm international conference on reconfigurable mechanisms and robots remar 2015 held in beijing china 20 22 july 2015 the conference papers are organized into seven parts to cover the reconfiguration theory topology kinematics and design of reconfigurable mechanisms including reconfigurable parallel mechanisms the most recent results on reconfigurable robots are presented including their analysis design simulation and control bio inspired mechanisms are also explored in the challenging fields of rehabilitation and minimally invasive surgery this book further addresses deployable mechanisms and origami inspired mechanisms and showcases a wide range of successful applications of reconfigurable mechanisms and robots advances in reconfigurable mechanisms and robots ii should be of interest for researchers engineers and postgraduate students in mechanical engineering electrical engineering computer science and mathematics

applied mathematical modelling for biomedical robotics and wearable devices delves into the innovative convergence of mathematical frameworks and biomedical engineering the book begins by exploring how advanced mathematical modelling underpins the development and optimization of robotic systems and wearable technologies tailored for medical applications with a strong emphasis on practical implementation it serves as a bridge between theoretical concepts and real world engineering challenges in the healthcare sector readers will gain insights into the transformative role of mathematical techniques that drive precision functionality and human centric design in cutting edge medical technologies the book also covers interdisciplinary applications integrating domains like

biomechanics sensor technology and data analytics by highlighting case studies and real world scenarios it showcases practical advancements in wearable devices that monitor health metrics and robotic systems that assist in surgical procedures examines the role of applied mathematical modeling in the design analysis and optimization of biomedical robots and wearable devices provides an insightful exploration of cutting edge developments in robotics and wearable devices bridges the gap between the areas of mathematics engineering and healthcare

the ever evolving industrial landscape poses challenges for businesses particularly in robotics where performance optimization and data security are paramount ai and blockchain applications in industrial robotics edited by esteemed scholars mihai lazarescu rajashekhar biradar geetha devanagavi nikhath tabassum and nayana hegde presents the transformative potential of combining ai and blockchain technologies to revolutionize the field this exceptional book provides comprehensive insights into how ai enhances predictive models and pattern recognition while blockchain ensures secure and immutable data transactions by synergizing these technologies businesses can achieve enhanced transparency trust and efficiency in their robotic processes with practical applications use cases and real world examples the book caters to a wide range of readers empowering them to embrace the possibilities of ai and blockchain in industrial robotics ai and blockchain applications in industrial robotics equip industries with the tools and understanding to overcome challenges in optimizing performance ensuring data security and harnessing emerging technologies serving as a beacon of knowledge this book drives innovation efficiency and competitiveness in the industrial sector whether for postgraduate students researchers industry professionals undergraduate students or freelance developers the book provides valuable insights and practical guidance for implementing ai and blockchain solutions by embracing the transformative potential of these technologies industries can unlock new possibilities and propel themselves forward in the ever advancing world of industrial robotics

for the third year in a row we are very happy to offer our readership an ebook of 11 articles that have achieved widespread acceptance within our core audience and beyond this time it concerns articles published in 2024 these papers are among the large number that attained significant interest last year but we selected just 11 which we consider to be the best these articles have already made an impact in the form of original research or comprehensive reviews as the field chief editor i would like to stand alongside our journal staff to honor all authors who contributed very high level papers to the journal last year and are contributing to our success we also thank the editors and reviewers of these papers and of all papers this past year for their invaluable contribution

the concepts represented in this textbook are explored for the first time in assistive and rehabilitation robotics which is the combination of physical cognitive and social human robot interaction to empower gait rehabilitation and assist human mobility the aim is to consolidate the methodologies modules and technologies implemented in lower limb exoskeletons smart walkers and social robots when human gait assistance and rehabilitation are the primary targets this book presents the combination of emergent technologies in healthcare applications and robotics science such as soft robotics force control novel sensing methods brain computer interfaces serious games automatic learning and motion planning from the clinical perspective case studies are presented for testing and evaluating how those robots interact with humans analyzing acceptance perception biomechanics factors and physiological mechanisms of recovery during the robotic assistance or therapy interfacing humans and robots for gait assistance and rehabilitation will enable undergraduate and graduate students of biomedical engineering rehabilitation engineering robotics and health sciences to understand the clinical needs technology and science of human robot interaction behind robotic devices for rehabilitation and the evidence and implications related to the implementation of those devices in actual therapy and daily life applications

for the second year in a row we are very happy to offer our readership an ebook of 10 articles that have achieved widespread acceptance within our core audience and beyond this time it concerns articles published in 2023 a landmark year for this journal as it was officially awarded its first impact factor these papers are among the large number that attained significant interest last year but we selected just 10 which we consider to be the best these articles have already made an impact in the form of original research or comprehensive reviews as the field chief editor i would like to stand alongside our journal staff to honor all authors who contributed very high level papers to the journal last year and are contributing to our success we also thank the editors and reviewers of these papers and of all papers this past year for their invaluable contribution

advanced collaborative robotics will be one of the most promising technologies in future industry e g in manufacturing logistics or construction human robot interaction and collaboration will be crucial for enhancing the operator s work conditions and wellbeing as well as production performance in that regard human factors with a special emphasis on cognitive ergonomics are fundamental to implementing safe fluent and efficient collaborative applications associated challenges and opportunities as well as design recommendations for interactive robotic systems must be considered likewise the general target of the present research topic is to contribute to the expansion of knowledge in this field promoting research focused on the study of human factors and cognitive

ergonomics in user centered and collaborative applications in industrial settings in particular it aims to enhance the benefits related to human robot interaction by limiting as much as possible the negative effects on the user's safety and wellbeing that can arise from an improper design and management of collaborative applications as well as optimizing production system performances

advances in reconfigurable mechanisms and robots i provides a selection of key papers presented in the second asme iftomm international conference on reconfigurable mechanisms and robots remar 2012 held on 9th 11th july 2012 in tianjin china this ongoing series of conferences will be covered in this ongoing collection of books a total of seventy eight papers are divided into seven parts to cover the topology kinematics and design of reconfigurable mechanisms with the reconfiguration theory analysis and synthesis and present the current research and development in the field of reconfigurable mechanisms including reconfigurable parallel mechanisms in this aspect the recent study and development of reconfigurable robots are further presented with the analysis and design and with their control and development the bio inspired mechanisms and subsequent reconfiguration are explored in the challenging fields of rehabilitation and minimally invasive surgery advances in reconfigurable mechanisms and robots i further extends the study to deployable mechanisms and foldable devices and introduces applications of reconfigurable mechanisms and robots the rich content of advances in reconfigurable mechanisms and robots i brings together new developments in reconfigurable mechanisms and robots

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