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[Intelligence Science and Big Data Engineering. Big Data and Machine Learning Techniques](#) - Xiaofei He 2015-10-13

The two-volume set LNCS 9242 + 9243 constitutes the proceedings of the 5th International Conference on Intelligence Science and Big Data Engineering, IScIDE 2015, held in Suzhou, China, in June 2015. The total of 126 papers presented in the proceedings was carefully reviewed and selected from 416 submissions. They deal with big data, neural networks, image processing, computer vision, pattern recognition and graphics, object detection, dimensionality reduction and manifold learning, unsupervised learning and clustering, anomaly detection, semi-supervised learning.

[Experimental Robotics](#) - Oussama Khatib 2013-08-20

Incorporating papers from the 12th International Symposium on Experimental Robotics (ISER), December 2010, this book examines the latest advances across the various fields of robotics. Offers insights on both theoretical concepts and experimental results.

[Intelligent Human Computer Interaction](#) - Jong-Hoon Kim 2022

This volume constitutes the refereed proceedings of the 13th International Conference on Intelligent Human Computer Interaction, IHCI 2021, which took place in Kent, OH, USA, in December 2021. The 59 full and 9 short papers included in these proceedings were carefully

reviewed and selected from a total of 142 submissions. The papers were organized in topical sections named human centered AI; and intelligent interaction and cognitive computing.

[Robot Operating System \(ROS\)](#) - Anis Koubaa 2020-08-21

This book is the fifth volume in the successful book series Robot Operating System: The Complete Reference. The objective of the book is to provide the reader with comprehensive coverage on the Robot Operating System (ROS), which is currently considered to be the primary development framework for robotics applications, and the latest trends and contributing systems. The content is divided into six parts. Part I presents for the first time the emerging ROS 2.0 framework, while Part II focuses on multi-robot systems, namely on SLAM and Swarm coordination. Part III provides two chapters on autonomous systems, namely self-driving cars and unmanned aerial systems. In turn, Part IV addresses the contributions of simulation frameworks for ROS. In Part V, two chapters explore robotic manipulators and legged robots. Finally, Part VI presents emerging topics in monocular SLAM and a chapter on fault tolerance systems for ROS. Given its scope, the book will offer a valuable companion for ROS users and developers, helping them deepen their knowledge of ROS capabilities and features.

Intelligence of Things: Technologies and Applications - Ngoc-Thanh

Nguyen 2022-09-23

This book constitutes the refereed proceedings of the First Conference on Intelligence of Things (ICIoT 2022), held in Hanoi, Vietnam, in August 2022. A total of 40 full papers in this book have been rigorously peer-reviewed and selected from over 100 submissions. The papers focused on the intelligence of things (AIoT) studies are organized in the following parts: theoretical intelligence analyses, intelligence services and applications, and intelligence service experiments. This book provides interested students and engineers with comprehensive and cutting-edge studies in the fields.

Advances in Intelligent and Autonomous Aerospace Systems - John Valasek 2012

Research advances in embedded computational intelligence, communication, control, and new mechanisms for sensing, actuation, and adaptation hold the promise to transform aerospace. The result will be air and space vehicles, propulsion systems, exploration systems, and vehicle management systems that respond more quickly, provide large-scale distributed coordination, work in dangerous or inaccessible environments, and augment human capabilities. *Advances in Intelligent and Autonomous Aerospace Systems* seeks to provide both the aerospace researcher and the practicing aerospace engineer with an exposition on the latest innovative methods and approaches that focus on intelligent and autonomous aerospace systems. The chapters are written by leading researchers in this field, and include ideas, directions, and recent results on intelligent aerospace research issues with a focus on dynamics and control, systems engineering, and aerospace design. The content on uncertainties, modeling of large and highly non-linear complex systems, robustness, and adaptivity is intended to be useful in both the sub-system and the overall system level design and analysis of various aerospace vehicles. A broad spectrum of methods and approaches are presented, including: * Bio-Inspiration * Fuzzy Logic * Genetic Algorithms * Q-Learning * Markov Decision Processes * Approximate Dynamic Programming * Artificial Neural Networks * Probabilistic Maps * Multi-Agent Systems * Kalman, particle, and confidence filtering

Safe, Autonomous and Intelligent Vehicles - Huafeng Yu 2018-11-14

This book covers the start-of-the-art research and development for the emerging area of autonomous and intelligent systems. In particular, the authors emphasize design and validation methodologies to address the grand challenges related to safety. This book offers a holistic view of a broad range of technical aspects (including perception, localization and navigation, motion control, etc.) and application domains (including automobile, aerospace, etc.), presents major challenges and discusses possible solutions.

Motion Planning - Edgar A. Martínez García 2022-01-26

Motion planning is a fundamental function in robotics and numerous intelligent machines. The global concept of planning involves multiple capabilities, such as path generation, dynamic planning, optimization, tracking, and control. This book has organized different planning topics into three general perspectives that are classified by the type of robotic applications. The chapters are a selection of recent developments in a) planning and tracking methods for unmanned aerial vehicles, b) heuristically based methods for navigation planning and routes optimization, and c) control techniques developed for path planning of autonomous wheeled platforms.

Delays and Networked Control Systems - Alexandre Seuret 2016-06-07

This edited monograph includes state-of-the-art contributions on continuous time dynamical networks with delays. The book is divided into four parts. The first part presents tools and methods for the analysis of time-delay systems with a particular attention on control problems of large scale or infinite-dimensional systems with delays. The second part of the book is dedicated to the use of time-delay models for the analysis and design of Networked Control Systems. The third part of the book focuses on the analysis and design of systems with asynchronous sampling intervals which occur in Networked Control Systems. The last part of the book exposes several contributions dealing with the design of cooperative control and observation laws for networked control systems. The target audience primarily comprises researchers and experts in the field of control theory, but the book may also be beneficial for graduate

students.

Simulation, Modeling, and Programming for Autonomous Robots -

Itsuki Noda 2012-10-20

This book constitutes the refereed proceedings of the Third International Conference on Simulation, Modeling, and Programming for Autonomous Robots, SIMPAR 2012, held in Tsukuba, Japan, in November 2012. The 33 revised full papers and presented together with 3 invited talks were carefully reviewed and selected from 46 submissions. Ten papers describe design of complex behaviors of autonomous robots, 9 address software layers, 8 papers refer to related modeling and learning. The papers are organized in topical sections on mobile robots, software modeling and architecture and humanoid and biped robots.

Robotics - Nicholas Roy 2013-07-05

Papers from a flagship conference reflect the latest developments in the field, including work in such rapidly advancing areas as human-robot interaction and formal methods. Robotics: Science and Systems VIII spans a wide spectrum of robotics, bringing together contributions from researchers working on the mathematical foundations of robotics, robotics applications, and analysis of robotics systems. This volume presents the proceedings of the eighth annual Robotics: Science and Systems (RSS) conference, held in July 2012 at the University of Sydney. The contributions reflect the exciting diversity of the field, presenting the best, the newest, and the most challenging work on such topics as mechanisms, kinematics, dynamics and control, human-robot interaction and human-centered systems, distributed systems, mobile systems and mobility, manipulation, field robotics, medical robotics, biological robotics, robot perception, and estimation and learning in robotic systems. The conference and its proceedings reflect not only the tremendous growth of robotics as a discipline but also the desire in the robotics community for a flagship event at which the best of the research in the field can be presented.

Advances in Automation, Signal Processing, Instrumentation, and Control

- Venkata Lakshmi Narayana Komanapalli 2021-03-04

This book presents the select proceedings of the International

Conference on Automation, Signal Processing, Instrumentation and Control (i-CASIC) 2020. The book mainly focuses on emerging technologies in electrical systems, IoT-based instrumentation, advanced industrial automation, and advanced image and signal processing. It also includes studies on the analysis, design and implementation of instrumentation systems, and high-accuracy and energy-efficient controllers. The contents of this book will be useful for beginners, researchers as well as professionals interested in instrumentation and control, and other allied fields.

Computational Modeling and Simulation of Intellect: Current State and Future Perspectives - Igel'nik, Boris 2011-05-31

"This book confronts the problem of meaning by fusing together methods specific to different fields and exploring the computational efficiency and scalability of these methods"--Provided by publisher.

Applied Informatics and Cybernetics in Intelligent Systems - Radek

Silhavy 2020-08-07

This book gathers the refereed proceedings of the Applied Informatics and Cybernetics in Intelligent Systems Section of the 9th Computer Science On-line Conference 2020 (CSOC 2020), held on-line in April 2020. Modern cybernetics and computer engineering in connection with intelligent systems are an essential aspect of ongoing research. This book addresses these topics, together with automation and control theory, cybernetic applications, and the latest research trends.

PRICAI 2019: Trends in Artificial Intelligence - Abhaya C. Nayak 2019-08-22

This three-volume set LNAI 11670, LNAI 11671, and LNAI 11672 constitutes the thoroughly refereed proceedings of the 16th Pacific Rim Conference on Artificial Intelligence, PRICAI 2019, held in Cuvu, Yanuca Island, Fiji, in August 2019. The 111 full papers and 13 short papers presented in these volumes were carefully reviewed and selected from 265 submissions. PRICAI covers a wide range of topics such as AI theories, technologies and their applications in the areas of social and economic importance for countries in the Pacific Rim.

Agricultural Informatics - Amitava Choudhury 2021-04-06

Despite the increasing population (the Food and Agriculture Organization of the United Nations estimates 70% more food will be needed in 2050 than was produced in 2006), issues related to food production have yet to be completely addressed. In recent years, Internet of Things technology has begun to be used to address different industrial and technical challenges to meet this growing need. These Agro-IoT tools boost productivity and minimize the pitfalls of traditional farming, which is the backbone of the world's economy. Aided by the IoT, continuous monitoring of fields provides useful and critical information to farmers, ushering in a new era in farming. The IoT can be used as a tool to combat climate change through greenhouse automation; monitor and manage water, soil and crops; increase productivity; control insecticides/pesticides; detect plant diseases; increase the rate of crop sales; cattle monitoring etc. *Agricultural Informatics: Automation Using the IoT and Machine Learning* focuses on all these topics, including a few case studies, and they give a clear indication as to why these techniques should now be widely adopted by the agriculture and farming industries. *Neural Computing for Advanced Applications* - Haijun Zhang 2022-10-20 The two-volume Proceedings set CCIS 1637 and 1638 constitutes the refereed proceedings of the Third International Conference on Neural Computing for Advanced Applications, NCAA 2022, held in Jinan, China, during July 8-10, 2022. The 77 papers included in these proceedings were carefully reviewed and selected from 205 submissions. These papers were categorized into 10 technical tracks, i.e., neural network theory, and cognitive sciences, machine learning, data mining, data security & privacy protection, and data-driven applications, computational intelligence, nature-inspired optimizers, and their engineering applications, cloud/edge/fog computing, the Internet of Things/Vehicles (IoT/IoV), and their system optimization, control systems, network synchronization, system integration, and industrial artificial intelligence, fuzzy logic, neuro-fuzzy systems, decision making, and their applications in management sciences, computer vision, image processing, and their industrial applications, natural language processing, machine translation, knowledge graphs, and their

applications, Neural computing-based fault diagnosis, fault forecasting, prognostic management, and system modeling, and Spreading dynamics, forecasting, and other intelligent techniques against coronavirus disease (COVID-19).

Mobile Intelligent Autonomous Systems - Jitendra R. Raol
2016-04-19

Going beyond the traditional field of robotics to include other mobile vehicles, this reference and "recipe book" describes important theoretical concepts, techniques, and applications that can be used to build truly mobile intelligent autonomous systems (MIAS). With the infusion of neural networks, fuzzy logic, and genetic algorithm paradigms for MIAS, it blends modeling, sensors, control, estimation, optimization, signal processing, and heuristic methods in MIAS and robotics, and includes examples and applications throughout. Offering a comprehensive view of important topics, it helps readers understand the subject from a system-theoretic and practical point of view.

Computer Vision Systems - Ming Liu 2017-10-10

This book constitutes the refereed proceedings of the 11th International Conference on Computer Vision Systems, ICVS 2017, held in Shenzhen, China, in July 2017. The 61 papers presented were carefully reviewed and selected from 92 submissions. The papers are organized in topical sections on visual control, visual navigation, visual inspection, image processing, human robot interaction, stereo system, image retrieval, visual detection, visual recognition, system design, and 3D vision / fusion.

Advanced Mobile Robotics - DaeEun Kim 2020-03-06

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.

Robot 2019: Fourth Iberian Robotics Conference - Manuel F. Silva
2019-11-19

This book gathers a selection of papers presented at ROBOT 2019 – the Fourth Iberian Robotics Conference, held in Porto, Portugal, on November 20th–22nd, 2019. ROBOT 2019 is part of a series of conferences jointly organized by the SPR – Sociedade Portuguesa de Robótica (Portuguese Society for Robotics) and SEIDROB – Sociedad Española para la Investigación y Desarrollo en Robótica (Spanish Society for Research and Development in Robotics). ROBOT 2019 built upon several previous successful events, including three biannual workshops and the three previous installments of the Iberian Robotics Conference, and chiefly focused on presenting the latest findings and applications in robotics from the Iberian Peninsula, although the event was also open to research and researchers from other countries. The event featured five plenary talks on state-of-the-art topics and 16 special sessions, plus a main/general robotics track. In total, after a stringent review process, 112 high-quality papers written by authors from 24 countries were selected for publication.

Methods and Applications for Modeling and Simulation of Complex Systems - Liang Li 2018-10-17

This volume constitutes the proceedings of the 18th Asia Simulation Conference, AsiaSim 2018, held in Kyoto, Japan, in August 2018. The 45 revised full papers presented in this volume were carefully reviewed and selected from 90 submissions. The papers are organized in topical sections on modeling and simulation technology; soft computing and machine learning; high performance computing and cloud computing; simulation technology for industry; simulation technology for intelligent society; simulation of instrumentation and control application; computational mathematics and computational science; flow simulation;

visualization and computer vision to support simulation.

Motion Control - Federico Casolo 2010-01-01

The book reveals many different aspects of motion control and a wide multiplicity of approaches to the problem as well. Despite the number of examples, however, this volume is not meant to be exhaustive: it intends to offer some original insights for all researchers who will hopefully make their experience available for a forthcoming publication on the subject.

The 10th International Conference on Computer Engineering and Networks - Qi Liu 2020-10-05

This book contains a collection of the papers accepted by the CENet2020 – the 10th International Conference on Computer Engineering and Networks held on October 16-18, 2020 in Xi'an, China. The topics focus but are not limited to Internet of Things and Smart Systems, Artificial Intelligence and Applications, Communication System Detection, Analysis and Application, and Medical Engineering and Information Systems. Each part can be used as an excellent reference by industry practitioners, university faculties, research fellows and undergraduates as well as graduate students who need to build a knowledge base of the most current advances and state-of-practice in the topics covered by this conference proceedings. This will enable them to produce, maintain, and manage systems with high levels of trustworthiness and complexity.

Deep Learning for Robot Perception and Cognition - Alexandros Iosifidis
2022-02-25

Deep Learning for Robot Perception and Cognition introduces a broad range of topics and methods in deep learning for robot perception and cognition together with end-to-end methodologies. The book provides the conceptual and mathematical background needed for approaching a large number of robot perception and cognition tasks from an end-to-end learning point-of-view. The book is suitable for students, university and industry researchers and practitioners in Robotic Vision, Intelligent Control, Mechatronics, Deep Learning, Robotic Perception and Cognition tasks. Presents deep learning principles and methodologies Explains the principles of applying end-to-end learning in robotics applications

Presents how to design and train deep learning models Shows how to apply deep learning in robot vision tasks such as object recognition, image classification, video analysis, and more Uses robotic simulation environments for training deep learning models Applies deep learning methods for different tasks ranging from planning and navigation to biosignal analysis

Proceedings of the 2018 International Symposium on Experimental Robotics - Jing Xiao 2020-01-22

In addition to the contributions presented at the 2018 International Symposium on Experimental Robotics (ISER 2018), this book features summaries of the discussions that were held during the event in Buenos Aires, Argentina. These summaries, authored by leading researchers and session organizers, offer important insights on the issues that drove the symposium debates. Readers will find cutting-edge experimental research results from a range of robotics domains, such as medical robotics, unmanned aerial vehicles, mobile robot navigation, mapping and localization, field robotics, robot learning, robotic manipulation, human-robot interaction, and design and prototyping. In this unique collection of the latest experimental robotics work, the common thread is the experimental testing and validation of new ideas and methodologies. The International Symposium on Experimental Robotics is a series of bi-annual symposia sponsored by the International Foundation of Robotics Research, whose goal is to provide a dedicated forum for experimental robotics research. In recent years, robotics has broadened its scientific scope, deepened its methodologies and expanded its applications. However, the significance of experiments remains at the heart of the discipline. The ISER gatherings are an essential venue where scientists can meet and have in-depth discussions on robotics based on this central tenet.

ROBOT 2017: Third Iberian Robotics Conference - Anibal Ollero 2017-11-10

These volumes of "Advances in Intelligent Systems and Computing" highlight papers presented at the "Third Iberian Robotics Conference (ROBOT 2017)". Held from 22 to 24 November 2017 in Seville, Spain, the

conference is a part of a series of conferences co-organized by SEIDROB (Spanish Society for Research and Development in Robotics) and SPR (Portuguese Society for Robotics). The conference is focused on Robotics scientific and technological activities in the Iberian Peninsula, although open to research and delegates from other countries. Thus, it has more than 500 authors from 21 countries. The volumes present scientific advances but also robotic industrial applications, looking to promote new collaborations between industry and academia.

Unmanned Aerial Systems - Anis Koubaa 2021-01-21

Unmanned Aerial Systems: Theoretical Foundation and Applications presents some of the latest innovative approaches to drones from the point-of-view of dynamic modeling, system analysis, optimization, control, communications, 3D-mapping, search and rescue, surveillance, farmland and construction monitoring, and more. With the emergence of low-cost UAS, a vast array of research works in academia and products in the industrial sectors have evolved. The book covers the safe operation of UAS, including, but not limited to, fundamental design, mission and path planning, control theory, computer vision, artificial intelligence, applications requirements, and more. This book provides a unique reference of the state-of-the-art research and development of unmanned aerial systems, making it an essential resource for researchers, instructors and practitioners. Covers some of the most innovative approaches to drones Provides the latest state-of-the-art research and development surrounding unmanned aerial systems Presents a comprehensive reference on unmanned aerial systems, with a focus on cutting-edge technologies and recent research trends in the area *Handbook of Research on Cyber Crime and Information Privacy* - Cruz-Cunha, Maria Manuela 2020-08-21

In recent years, industries have transitioned into the digital realm, as companies and organizations are adopting certain forms of technology to assist in information storage and efficient methods of production. This dependence has significantly increased the risk of cyber crime and breaches in data security. Fortunately, research in the area of cyber security and information protection is flourishing; however, it is the

responsibility of industry professionals to keep pace with the current trends within this field. The Handbook of Research on Cyber Crime and Information Privacy is a collection of innovative research on the modern methods of crime and misconduct within cyber space. It presents novel solutions to securing and preserving digital information through practical examples and case studies. While highlighting topics including virus detection, surveillance technology, and social networks, this book is ideally designed for cybersecurity professionals, researchers, developers, practitioners, programmers, computer scientists, academicians, security analysts, educators, and students seeking up-to-date research on advanced approaches and developments in cyber security and information protection.

Research Anthology on Cross-Disciplinary Designs and Applications of Automation - Management Association, Information Resources 2021-10-29

Throughout human history, technological advancements have been made for the ease of human labor. With our most recent advancements, it has been the work of scholars to discover ways for machines to take over a large part of this labor and reduce human intervention. These advancements may become essential processes to nearly every industry. It is essential to be knowledgeable about automation so that it may be applied. Research Anthology on Cross-Disciplinary Designs and Applications of Automation is a comprehensive resource on the emerging designs and application of automation. This collection features a number of authors spanning multiple disciplines such as home automation, healthcare automation, government automation, and more. Covering topics such as human-machine interaction, trust calibration, and sensors, this research anthology is an excellent resource for technologists, IT specialists, computer engineers, systems and software engineers, manufacturers, engineers, government officials, professors, students, healthcare administration, managers, CEOs, researchers, and academicians.

Robotics Research - Masayuki Inaba 2016-04-22

This volume presents a collection of papers presented at the 16th

International Symposium of Robotic Research (ISRR). ISRR is the biennial meeting of the International Foundation of Robotic Research (IFRR) and its 16th edition took place in Singapore over the period 16th to 19th December 2013. The ISRR is the longest running series of robotics research meetings and dates back to the very earliest days of robotics as a research discipline. This 16th ISRR meeting was held in the 30th anniversary year of the very first meeting which took place in Bretton Woods (New Hampshire, USA) in August 1983., and represents thirty years at the forefront of ideas in robotics research. As for the previous symposia, ISRR 2013 followed up on the successful concept of a mixture of invited contributions and open submissions. 16 of the contributions were invited contributions from outstanding researchers selected by the IFRR officers and the program committee, and the other contributions were chosen among the open submissions after peer review. This selection process resulted in a truly excellent technical program which featured some of the very best of robotic research. These papers were presented in a single-track interactive format which enables real conversations between speakers and the audience. The symposium contributions contained in this volume report on a variety of new robotics research results covering a broad spectrum organized into traditional ISRR categories: control; design; intelligence and learning; manipulation; perception; and planning.

Aircraft Control and Simulation - Brian L. Stevens 2015-10-02
Get a complete understanding of aircraft control and simulation Aircraft Control and Simulation: Dynamics, Controls Design, and Autonomous Systems, Third Edition is a comprehensive guide to aircraft control and simulation. This updated text covers flight control systems, flight dynamics, aircraft modeling, and flight simulation from both classical design and modern perspectives, as well as two new chapters on the modeling, simulation, and adaptive control of unmanned aerial vehicles. With detailed examples, including relevant MATLAB calculations and FORTRAN codes, this approachable yet detailed reference also provides access to supplementary materials, including chapter problems and an instructor's solution manual. Aircraft control, as a subject area, combines

an understanding of aerodynamics with knowledge of the physical systems of an aircraft. The ability to analyze the performance of an aircraft both in the real world and in computer-simulated flight is essential to maintaining proper control and function of the aircraft. Keeping up with the skills necessary to perform this analysis is critical for you to thrive in the aircraft control field. Explore a steadily progressing list of topics, including equations of motion and aerodynamics, classical controls, and more advanced control methods. Consider detailed control design examples using computer numerical tools and simulation examples. Understand control design methods as they are applied to aircraft nonlinear math models. Access updated content about unmanned aircraft (UAVs). **Aircraft Control and Simulation: Dynamics, Controls Design, and Autonomous Systems, Third Edition** is an essential reference for engineers and designers involved in the development of aircraft and aerospace systems and computer-based flight simulations, as well as upper-level undergraduate and graduate students studying mechanical and aerospace engineering.

Congress on Intelligent Systems - Harish Sharma 2021-06-01

This book is a collection of selected papers presented at the First Congress on Intelligent Systems (CIS 2020), held in New Delhi, India, during September 5-6, 2020. It includes novel and innovative work from experts, practitioners, scientists, and decision-makers from academia and industry. It covers topics such as Internet of Things, information security, embedded systems, real-time systems, cloud computing, big data analysis, quantum computing, automation systems, bio-inspired intelligence, cognitive systems, cyber physical systems, data analytics, data/web mining, data science, intelligence for security, intelligent decision making systems, intelligent information processing, intelligent transportation, artificial intelligence for machine vision, imaging sensors technology, image segmentation, convolutional neural network, image/video classification, soft computing for machine vision, pattern recognition, human-computer interaction, robotic devices and systems, autonomous vehicles, intelligent control systems, human motor control, game playing, evolutionary algorithms, swarm optimization, neural

network, deep learning, supervised learning, unsupervised learning, fuzzy logic, rough sets, computational optimization, and neuro-fuzzy systems.

Intelligent Systems: Models and Applications - Endre Pap

2012-10-20

The theory and applications of intelligent systems is today an important field of research. This book is an up-to-date collection of seventeen chapters, written by recognized experts in the field. In an introductory mathematical foundations part an overview of generalizations of the integral inequalities for nonadditive integrals and a construction of the General Prioritized Fuzzy Satisfaction Problem is given. Then different aspects of robotics are presented, such as the differences between human beings and robots, the motion of bipedal humanoid robots, and an evaluation of different autonomous quadrotor flight controllers. Also Fuzzy Systems are presented by a model of basic planar imprecise geometric objects allowing various applications in image analysis, GIS, and robotics, as well as a type-2 fuzzy logic in a software library for developing perceptual computers, and a two-degree-of-freedom speed control solutions for a brushless Direct Current motor. The book also presents recent applications in medicine such as a Virtual Doctor System, methods for a face to face human machine interaction, and an emotion estimation, with applications for multiple diseases and the effect of the applied therapy. The last part of the book covers different applications in transportation, network monitoring, and localization of pedestrians in images.

Big Data Analytics for Cyber-Physical Systems - Guido Dartmann

2019-07-15

Big Data Analytics in Cyber-Physical Systems: Machine Learning for the Internet of Things examines sensor signal processing, IoT gateways, optimization and decision-making, intelligent mobility, and implementation of machine learning algorithms in embedded systems. This book focuses on the interaction between IoT technology and the mathematical tools used to evaluate the extracted data of those systems. Each chapter provides the reader with a broad list of data analytics and

machine learning methods for multiple IoT applications. Additionally, this volume addresses the educational transfer needed to incorporate these technologies into our society by examining new platforms for IoT in schools, new courses and concepts for universities and adult education on IoT and data science. . Bridges the gap between IoT, CPS, and mathematical modelling. Features numerous use cases that discuss how concepts are applied in different domains and applications. Provides "best practices", "winning stories" and "real-world examples" to complement innovation. Includes highlights of mathematical foundations of signal processing and machine learning in CPS and IoT.

Advances in Computers - Veljko Milutinovic 2020-01-10

Advances in Computers, Volume 116, presents innovations in computer hardware, software, theory, design, and applications, with this updated volume including new chapters on Teaching Graduate Students How to Review Research Articles and How to Respond to Reviewer Comments, ALGATOR - An Automatic Algorithm Evaluation System, Graph Grammar Induction, Asymmetric Windows in Digital Signal Processing, Intelligent Agents in Games: Review With an Open-Source Tool, Using Clickstream Data to Enhance Reverse Engineering of Web Applications, and more. Contains novel subject matter that is relevant to computer science Includes the expertise of contributing authors Presents an easy to comprehend writing style

Computational Intelligence in Machine Learning - Amit Kumar 2022-03-03

The book includes select proceedings of the International Conference on Computational Intelligence in Machine Learning (ICCIML 2021). The book constitutes peer-reviewed papers on machine learning, computational intelligence, the internet of things, and smart city applications emphasizing multi-disciplinary research in artificial intelligence and cyber-physical systems. This book addresses the comprehensive nature of computational intelligence, artificial intelligence, machine learning, and deep learning to emphasize its character in modeling, identification, optimization, prediction, forecasting, and control of future intelligent systems. The book will be

useful for researchers, research scholars, and students to formulate their research ideas and find future directions in these areas. It will help the readers to solve a diverse range of problems in industries and their real-world applications.

Intelligent Autonomous Systems 10 - Wolfram Burgard 2008

The International Conference on Intelligent Autonomous Systems (IAS) conference brings together leading researchers interested in all aspects of autonomy and adaptivity of artificial systems. This book contains the proceedings of the tenth IAS in Baden Baden, Germany.

Advances in Guidance, Navigation and Control - Liang Yan 2021-11-12

This book features the latest theoretical results and techniques in the field of guidance, navigation, and control (GNC) of vehicles and aircraft. It covers a range of topics, including, but not limited to, intelligent computing communication and control; new methods of navigation, estimation, and tracking; control of multiple moving objects; manned and autonomous unmanned systems; guidance, navigation, and control of miniature aircraft; and sensor systems for guidance, navigation, and control. Presenting recent advances in the form of illustrations, tables, and text, it also provides detailed information of a number of the studies, to offer readers insights for their own research. In addition, the book addresses fundamental concepts and studies in the development of GNC, making it a valuable resource for both beginners and researchers wanting to further their understanding of guidance, navigation, and control.

Deep Learning for Unmanned Systems - Anis Koubaa 2021-10-01

This book is used at the graduate or advanced undergraduate level and many others. Manned and unmanned ground, aerial and marine vehicles enable many promising and revolutionary civilian and military applications that will change our life in the near future. These applications include, but are not limited to, surveillance, search and rescue, environment monitoring, infrastructure monitoring, self-driving cars, contactless last-mile delivery vehicles, autonomous ships, precision agriculture and transmission line inspection to name just a few. These vehicles will benefit from advances of deep learning as a subfield of

machine learning able to endow these vehicles with different capability such as perception, situation awareness, planning and intelligent control. Deep learning models also have the ability to generate actionable insights into the complex structures of large data sets. In recent years, deep learning research has received an increasing amount of attention from researchers in academia, government laboratories and industry. These research activities have borne some fruit in tackling some of the challenging problems of manned and unmanned ground, aerial and marine vehicles that are still open. Moreover, deep learning methods have been recently actively developed in other areas of machine learning, including reinforcement training and transfer/meta-learning, whereas standard, deep learning methods such as recent neural network (RNN) and coevolutionary neural networks (CNN). The book is primarily

meant for researchers from academia and industry, who are working on in the research areas such as engineering, control engineering, robotics, mechatronics, biomedical engineering, mechanical engineering and computer science. The book chapters deal with the recent research problems in the areas of reinforcement learning-based control of UAVs and deep learning for unmanned aerial systems (UAS) The book chapters present various techniques of deep learning for robotic applications. The book chapters contain a good literature survey with a long list of references. The book chapters are well written with a good exposition of the research problem, methodology, block diagrams and mathematical techniques. The book chapters are lucidly illustrated with numerical examples and simulations. The book chapters discuss details of applications and future research areas.