Reinforcement Learning For Autonomous Quadrotor Helicopter

Deep Learning for Unmanned Systems 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.

Frontiers of Intelligent Autonomous Systems 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

Advances in Automation and Robotics Research 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.

Robotics Research This book features selected papers presented at the 15th International Conference on Electromechanics and Robotics “Zavalishin's Readings”
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— ER(ZR) 2020, held in Ufa, Russia, on 15–18 April 2020. The contributions, written by professionals, researchers and students, cover topics in the field of automatic control systems, electromechanics, electric power engineering and electrical engineering, mechatronics, robotics, automation and vibration technologies. The Zavalishin's Readings conference was established as a tribute to the memory of Dmitry Aleksandrovich Zavalishin (1900–1968) — a Russian scientist, corresponding member of the USSR Academy of Sciences and founder of the school of valve energy converters based on electric machines and valve converters energy. The first conference was organized by the Institute of Innovative Technologies in Electromechanics and Robotics at the Saint Petersburg State University of Aerospace Instrumentation in 2006.

Congress on Intelligent Systems UAVs (Unmanned Aerial Vehicle), also known as drones, are becoming attractive in the consumer space due to their relatively low cost and their ability to operate autonomously with minimal human intervention. A user could program the drone with GPS coordinates, and the drone would comply with utmost precision. In order for the drone to operate a preprogrammed flight path, it requires a host of sensors for it to gather data and operate on that data in real time. For instance, a consumer drone typically has obstacle avoidance sensors, a GPS sensor for routing and navigation, and an IMU (Inertial Measurement Unit) for tracking position and orientation. These sensors play a crucial role in both stabilization and navigation of the drone. This report aims to investigate, analyze and understand the complexity involved in designing and implementing an autonomous quadcopter; specifically, the stabilization algorithms. In general, stabilization is achieved using some form of control algorithm. The report covers a popular approach for stabilization (PID Control) found with many open
source libraries and contrasts it with an alternative machine learning approach (Neural Networks). Finally, a machine learning based algorithm is implemented and evaluated on a prototype quadcopter, and its results are presented.

Advances in Computers Deep learning algorithms have brought a revolution to the computer vision community by introducing non-traditional and efficient solutions to several image-related problems that had long remained unsolved or partially addressed. This book presents a collection of eleven chapters where each individual chapter explains the deep learning principles of a specific topic, introduces reviews of up-to-date techniques, and presents research findings to the computer vision community. The book covers a broad scope of topics in deep learning concepts and applications such as accelerating the convolutional neural network inference on field-programmable gate arrays, fire detection in surveillance applications, face recognition, action and activity recognition, semantic segmentation for autonomous driving, aerial imagery registration, robot vision, tumor detection, and skin lesion segmentation as well as skin melanoma classification. The content of this book has been organized such that each chapter can be read independently from the others. The book is a valuable companion for researchers, for postgraduate and possibly senior undergraduate students who are taking an advanced course in related topics, and for those who are interested in deep learning with applications in computer vision, image processing, and pattern recognition.

Collaborative Computing: Networking, Applications and Worksharing This book constitutes the thoroughly refereed post-workshop proceedings of the First International Workshop on Modelling and Simulation for Autonomous Systems, MESAS 2014, held in Rome, Italy, in May 2014. The 32 revised full papers included in
the volume were carefully reviewed and selected from 50 submissions, of which 46 were presented at the workshop. They are organized in the following topical sections: unmanned aerial vehicle, distributed simulation, robot system, military application, validation, human-machine communication, gazebo simulator, and algorithm.

Advances on P2P, Parallel, Grid, Cloud and Internet Computing This book describes the latest advances in intelligent techniques such as fuzzy logic, neural networks, and optimization algorithms, and their relevance in building intelligent information systems in combination with applied mathematics. The authors also outline the applications of these systems in areas like intelligent control and robotics, pattern recognition, medical diagnosis, time series prediction, and optimization of complex problems. By sharing fresh ideas and identifying new targets/problems it offers young researchers and students new directions for their future research. The book is intended for readers from mathematics and computer science, in particular professors and students working on theory and applications of intelligent systems for real-world applications.

Intelligence Science and Big Data Engineering. Big Data and Machine Learning Techniques Photographing small objects with a quadcopter is non-trivial to perform with many common user interfaces, especially when it requires maneuvering an Unmanned Aerial Vehicle (UAV) to difficult angles in order to shoot high perspectives. The aim of this research is to employ machine learning to support better user interfaces for quadcopter photography. Human Robot Interaction (HRI) is supported by visual servoing, a specialized vision system for real-time object detection, and control policies acquired through reinforcement learning (RL). Two investigations of guided autonomy were conducted. In the first, the user
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directed the quadcopter with a sketch based interface, and periods of user direction were interspersed with periods of autonomous flight. In the second, the user directs the quadcopter by taking a single photo with a handheld mobile device, and the quadcopter autonomously flies to the requested vantage point. This dissertation focuses on the following problems: 1) evaluating different user interface paradigms for dynamic photography in a GPS-denied environment; 2) learning better Convolutional Neural Network (CNN) object detection models to assure a higher precision in detecting human subjects than the currently available state-of-the-art fast models; 3) transferring learning from the Gazebo simulation into the real world; 4) learning robust control policies using deep reinforcement learning to maneuver the quadcopter to multiple shooting positions with minimal human interaction.

Recent Advances in Intelligent Information Systems and Applied Mathematics 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
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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.

Lifelong Machine Learning 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

Mobile Intelligent Autonomous Systems This book presents selected research papers on current developments in the fields of soft computing and signal processing from the Third International Conference on Soft Computing and Signal Processing (ICSCSP 2020). The book covers topics such as soft sets, rough sets, fuzzy logic, neural networks, genetic algorithms and machine learning and discusses various aspects of these topics, e.g., technological
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considerations, product implementation and application issues.

Proceedings of 2019 Chinese Intelligent Systems Conference 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
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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.

Progress in Artificial Intelligence This book provide latest research findings, innovative research results, methods and development techniques from both theoretical and practical perspectives related to P2P, grid, cloud and Internet computing as well as to reveal synergies among such large-scale computing paradigms. P2P, grid, cloud and Internet computing technologies have been very fast established as breakthrough paradigms for solving complex problems by enabling aggregation and sharing of an increasing variety of distributed computational resources at large scale. Grid computing originated as a paradigm for high performance computing, as an alternative to expensive supercomputers through different forms of large-scale distributed computing. P2P computing emerged as a new paradigm after client-server and web-based computing and has shown useful to the development of social networking, Business to Business (B2B), Business to Consumer (B2C), Business to Government (B2G), Business to Employee (B2E) and so on. Cloud computing has been defined as a “computing paradigm where the boundaries of computing are determined by economic rationale rather than technical limits.” Cloud computing has fast become the computing paradigm with applicability and adoption in all application domains and providing utility computing at large scale. Finally, Internet computing is the basis of any large-scale distributed computing paradigms; it
has very fast developed into a vast area of flourishing field with enormous impact on today's information societies serving thus as a universal platform comprising a large variety of computing forms such as grid, P2P, cloud and mobile computing.

**Quadcopter Stabilization with Neural Network** 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.

**Deep Learning in Computer Vision** This book showcases new theoretical findings and techniques in the field of intelligent systems and control. It presents in-depth studies on a number of major topics, including: Multi-Agent Systems, Complex Networks, Intelligent Robots, Complex System Theory and Swarm Behavior, Event-Triggered Control and Data-Driven Control, Robust and Adaptive Control, Big Data and Brain Science, Process Control, Intelligent Sensor and Detection Technology, Deep learning and Learning Control, Guidance, Navigation and Control of Aerial
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Vehicles, and so on. Given its scope, the book will benefit all researchers, engineers, and graduate students who want to learn about cutting-edge advances in intelligent systems, intelligent control, and artificial intelligence.

Pattern Recognition 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.

Recent Advances in Information and Communication Technology 2015 Lifelong Machine Learning, Second Edition is an introduction to an advanced machine learning paradigm that continuously learns by accumulating past knowledge that it then uses in future learning and problem solving. In contrast, the current dominant machine learning paradigm learns in isolation: given a training dataset, it runs a machine learning algorithm on the dataset to produce a model that is then used in its intended application. It makes no attempt to retain the learned knowledge and use it in subsequent learning. Unlike this isolated system, humans learn effectively with only a few examples precisely because our learning is very knowledge-driven: the knowledge learned in the past helps us learn new things with little data or effort. Lifelong learning aims to emulate this capability, because without it, an AI system cannot be considered
truly intelligent. Research in lifelong learning has developed significantly in the relatively short time since the first edition of this book was published. The purpose of this second edition is to expand the definition of lifelong learning, update the content of several chapters, and add a new chapter about continual learning in deep neural networks—which has been actively researched over the past two or three years. A few chapters have also been reorganized to make each of them more coherent for the reader. Moreover, the authors want to propose a unified framework for the research area. Currently, there are several research topics in machine learning that are closely related to lifelong learning—most notably, multi-task learning, transfer learning, and meta-learning—because they also employ the idea of knowledge sharing and transfer. This book brings all these topics under one roof and discusses their similarities and differences. Its goal is to introduce this emerging machine learning paradigm and present a comprehensive survey and review of the important research results and latest ideas in the area. This book is thus suitable for students, researchers, and practitioners who are interested in machine learning, data mining, natural language processing, or pattern recognition. Lecturers can readily use the book for courses in any of these related fields.

ROBOT 2017: Third Iberian Robotics Conference 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 

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Experimental Robotics

This volume presents a collection of papers presented at the 15th International Symposium of Robotic Research (ISRR). ISRR is the biennial meeting of the International Foundation of Robotic Research (IFRR) and its 15th edition took place in Flagstaff, Arizona on December 9 to December 12, 2011. As for the previous symposia, ISRR 2011 followed up on the successful concept of a mixture of invited contributions and open submissions. Therefore approximately half of the 37 contributions were invited contributions from outstanding researchers selected by the IFRR officers and the program committee, and the other half 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. The program was organized around oral presentation in a single-track format and included for the first time a small number of interactive presentations. The symposium contributions contained in this volume report on a variety of new robotics research results covering a broad spectrum including perception, manipulation, grasping, vehicles and design, navigation, control and integration, estimation and SLAM.

Proceedings of 15th International Conference on Electromechanics and Robotics "Zavalishin's Readings"

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.

Unmanned Aerial Systems

Advanced Computing and Intelligent Technologies This book gathers selected high-quality research papers presented at International Conference on Advanced Computing and Intelligent Technologies (ICACIT 2021) held at NCR New Delhi, India, during March 2021, 2021, jointly organized by Galgotias University, India, and Department of Information Engineering and Mathematics Universita Di Siena, Italy. It discusses emerging topics pertaining to advanced computing, intelligent technologies, and networks including AI and machine learning, data mining, big data analytics, high-performance computing network performance analysis, Internet of things networks, wireless sensor networks, and others. The book offers a valuable asset for researchers from both academia and industries involved in advanced studies.

Agricultural Informatics This carefully edited volume aims at providing readers with the most recent progress on intelligent autonomous systems, with its particular emphasis on intelligent autonomous ground, aerial and underwater vehicles as well as service robots for home and healthcare under the context of the aforementioned convergence. “Frontiers of Intelligent Autonomous Systems” includes thoroughly revised and extended papers selected from the 12th International Conference on Intelligent Autonomous Systems (IAS-12), held in Jeju, Korea, June 26-29, 2012. The editors chose 35 papers out of the 202 papers presented at IAS-12 which are organized into three chapters: Chapter 1 is dedicated to autonomous navigation and mobile manipulation, Chapter 2 to unmanned aerial and underwater vehicles and Chapter 3
to service robots for home and healthcare. To help the readers to easily access this volume, each chapter starts with a chapter summary introduced by one of the editors: Chapter 1 by Sukhan Lee, Chapter 2 by Kwang Joon Yoon and Chapter 3 by Jangmyung Lee.

Methods and Applications for Modeling and Simulation of Complex Systems 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.

Robot Operating System (ROS) This volume contains the proceedings of the tenth International Conference on Intelligent Autonomous Systems (IAS-10) in Baden Baden, Germany. The IAS conference brings together
leading researchers interested in all aspects of autonomy and adaptivity of artificial systems. One of the driving forces of this conference is the observation that intelligence and autonomy is best studied and demonstrated using mobile robots acting autonomously in real-world environments and under challenging conditions. The papers contained in the final program of the conference cover a wide spectrum of research in autonomous intelligent systems including agent technology, walking robots, motion planning, robot control, multi-robot systems, navigation, perception, applications, learning and adaptation, and humanoid robots, just to mention some of them. The organization of IAS-10 aims to provide the reader with new ideas and to exchange knowledge in relation to the research of autonomous systems. Previous IAS proceedings are available through IOS Press as well.

Proceedings of the 4th International Conference on Electrical Engineering and Control Applications
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:
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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.

Motion Control This book constitutes the refereed proceedings of the 20th EPIA Conference on Artificial Intelligence, EPIA 2021, held virtually in September 2021. The 62 full papers and 6 short papers presented were carefully reviewed and selected from a total of 108 submissions. The papers are organized in the following topical sections: artificial intelligence and IoT in agriculture; artificial intelligence and law; artificial intelligence in medicine; artificial intelligence in power and energy systems; artificial intelligence in transportation systems; artificial life and evolutionary algorithms; ambient intelligence and affective environments; general AI; intelligent robotics; knowledge discovery and business intelligence; multi-agent systems: theory and applications; and text mining and applications.

Digital Twin Technology

Safe, Autonomous and Intelligent Vehicles This book presents recent research work and results in the area of communication and information technologies. The book includes the main results of the 11th International Conference on Computing and Information Technology (IC2IT) held during July 2nd-3rd, 2015 in Bangkok, Thailand. The book is divided into the two main parts Data Mining and Machine Learning as well as Data Network and Communications. New algorithms and methods of data mining are discussed as well as innovative applications and state-of-the-art technologies on data mining, machine learning and data networking.

Soft Computing and Signal Processing Most of the
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business sectors consider the Digital Twin concept as the next big thing in the industry. A current state analysis of their digital counterparts helps in the prediction of the future of physical assets. Organizations obtain better insights on their product performance through the implementation of Digital Twins, and the applications of the technology are frequently in sectors such as manufacturing, automobile, retail, health care, smart cities, industrial IoT, etc. This book explores the latest developments and covers the significant challenges, issues, and advances in Digital Twin Technology. It will be an essential resource for anybody involved in related industries, as well as anybody interested in learning more about this nascent technology. This book includes: The future, present, and past of Digital Twin Technology. Digital twin technologies across the Internet of Drones, which developed various perceptive and autonomous capabilities, towards different control strategies such as object detection, navigation, security, collision avoidance, and backup. These approaches help to deal with the expansive growth of big data solutions. The recent digital twin concept in agriculture, which offers the vertical framing by IoT installation development to enhance the problematic food supply situation. It also allows for significant energy savings practices. It is highly required to overcome those challenges in developing advanced imaging methods of disease detection & prediction to achieve more accuracy in large land areas of crops. The welfare of upcoming archetypes such as digitalization in forensic analysis. The ideas of digital twin have arisen to style the corporeal entity and associated facts reachable software and customers over digital platforms. Wind catchers as earth building: Digital Twins vs. green sustainable architecture.

Modelling and Simulation for Autonomous Systems
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Intelligent Systems: Models and Applications This book provides the state-of-the-art intelligent methods and techniques for solving real-world problems along with a vision of the future research. The fifth 2020 Future Technologies Conference was organized virtually and received a total of 590 submissions from academic pioneering researchers, scientists, industrial engineers, and students from all over the world. The submitted papers covered a wide range of important topics including but not limited to computing, electronics, artificial intelligence, robotics, security and communications and their applications to the real world. After a double-blind peer review process, 210 submissions (including 6 poster papers) have been selected to be included in these proceedings. One of the meaningful and valuable dimensions of this conference is the way it brings together a large group of technology geniuses in one venue to not only present breakthrough research in future technologies, but also to promote discussions and debate of relevant issues, challenges, opportunities and research findings. The authors hope that readers find the book interesting, exciting and inspiring.

Advances in Guidance, Navigation and Control 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
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copyright 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.

Intelligent Autonomous Systems 12 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.

Intelligent Autonomous Systems 10 This book constitutes the proceedings of the 12th Mexican Conference on Pattern Recognition, MCPR 2020, which was due to be held in Morelia, Mexico, in June 2020. The conference was held virtually due to the COVID-19 pandemic. The 31 papers presented in this volume were carefully reviewed and selected from 67 submissions. They were organized in the following topical sections: pattern recognition techniques; image processing and analysis; computer vision; industrial and medical applications of pattern recognition; natural language processing and recognition; artificial intelligence techniques and recognition.

Proceedings of the Future Technologies Conference (FTC) 2020, Volume 2 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.

Advances in Computers This book gathers papers presented during the 4th International Conference on Electrical Engineering and Control Applications. It covers new control system models, troubleshooting tips and complex system requirements, such as increased speed, precision and remote capabilities. Additionally, the papers discuss not only the engineering aspects of signal processing and various practical issues in the broad field of information transmission, but also novel technologies for communication networks and modern antenna design. This book is intended for researchers, engineers and advanced postgraduate students in the fields of control and electrical engineering, computer science and signal processing, as well as mechanical and chemical engineering.

Advances in Computing and Data Sciences 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

Guided Autonomy for Quadcopter Photography Intelligent autonomous systems are emerged as a key enabler for the creation of a new paradigm of services to
humankind, as seen by the recent advancement of autonomous cars licensed for driving in our streets, of unmanned aerial and underwater vehicles carrying out hazardous tasks on-site, and of space robots engaged in scientific as well as operational missions, to list only a few. This book aims at serving the researchers and practitioners in related fields with a timely dissemination of the recent progress on intelligent autonomous systems, based on a collection of papers presented at the 12th International Conference on Intelligent Autonomous Systems, held in Jeju, Korea, June 26-29, 2012. With the theme of “Intelligence and Autonomy for the Service to Humankind, the conference has covered such diverse areas as autonomous ground, aerial, and underwater vehicles, intelligent transportation systems, personal/domestic service robots, professional service robots for surgery/rehabilitation, rescue/security and space applications, and intelligent autonomous systems for manufacturing and healthcare. This volume 1 includes contributions devoted to Autonomous Ground Vehicles and Mobile Manipulators, as well as Unmanned Aerial and Underwater Vehicles and Bio-inspired Robotics.

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