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model based calibration toolbox provides design tools for optimally calibrating complex powertrain systems using statistical modeling and numeric optimization you can define test plans develop statistical models and generate calibrations and lookup tables for complex high degree of freedom engines that would require exhaustive testing using traditional methods by using the toolbox with matlab and simulink you can develop a process for systematically identifying the optimal balance of engine performance missions and fuel economy and reuse statistical models for control design hardware in the loop testing or powertrain simulation the model based calibration toolbox product contains tools for design of experiment statistical modeling and calibration of complex systems the toolbox has two main apps model browser for design of experiment and statistical modeling cage browser for analytical calibrationthe model browser is a flexible powerful intuitive graphical interface for building and evaluating experimental designs and statistical models cage calibration generation is an easy to use graphical interface for calibrating lookup tables for your electronic control unit ecu as engines get more complicated and models of engine behavior more intricate it is increasingly difficult to rely on intuition alone to calibrate lookup tables cage provides analytical methods for calibrating lookup tables cage uses models of the engine control subsystems to calibrate lookup tables with cage you fill and optimize lookup tables in existing ecu software using models from the model browser part of the model based calibration toolbox product from these models cage builds steady state ecu calibrations cage also compares lookup tables directly to experimental data for validation a feature calibration compares a model of an estimated signal with a lookup table or algebraic collection of tables that estimates the same signal in the ecu cage finds the optimum calibration for the lookup table s for example a typical engine subsystem controls the spark angle to produce the peak torque that is the maximum brake torque mbt spark using the model browser you can build a statistically sound model of mbt spark over a range of engine speeds and relative air charges or loads use the feature calibration to fill a lookup table by comparing the table to the model a tradeoff calibration fills lookup tables by comparing models of different engine characteristics at key operating points for example there are several models of important engine characteristics such as torque and nitrous oxides nox emissions both models depend on the spark angle at a particular operating point a slight reduction of torque can result in a dramatic reduction of nox emissions thus the calibrator uses the value of the spark angle that gives this reduction in nox emissions instead of the spark angle that generates maximum torque cage can optimize calibrations with reference to models including single and multiobjective optimizations sum optimizations user defined optimizations and automated tradeoff this book is the first textbook specially on multicopter systems in the world it provides a comprehensive overview of multicopter systems rather than focusing on a single method or technique the fifteen chapters are divided into five parts covering the topics of multicopter design modeling state estimation control and decision making it differs from other books in the field in three major respects it is basic and practical offering self contained content and presenting hands on methods it is comprehensive and systematic and it is timely it is also closely related to the autopilot that users often employ today and provides insights into the code employed as such it offers a valuable resource for anyone interested in multicopters including students teachers researchers and engineers this introductory text is a welcome addition to the literature on multicopter design and control on which the author is an acknowledged authority the book is directed to advanced undergraduate and beginning graduate students in aeronautical and control or electrical engineering as well as to multicopter designers and hobbyists professor w murray wonham university of toronto this is the single best introduction to multicopter control clear comprehensive and progressing from basic principles to advanced techniques it s a

must read for anyone hoping to learn how to design flying robots chris anderson 3d robotics ceo this e book is a compilation of papers presented at the mechanical engineering research day 2015 merd 15 melaka malaysia on 31 march 2015 mechatronics as the integrating framework of mechanical engineering electrical engineering computer technology control engineering and automation forms a crucial part in the design manufacture and maintenance of a wide range of engineering products and processes the mechatronics itself changes rapidly in last decade from original mixture of subfields into original approach in engineering as a technical discipline the book you are holding is aimed to help the reader to orient in this evolving field of science and technology mechatronics 2013 recent technological and scientific advances is the fourth volume following the previous editions in 2007 2009 and 2011 providing the comprehensive and accessible coverage of advances in mechatronics presented on the 10th international conference mechatronics 2013 hosted this year at the brno university of technology czech republic the contributions that passed the thorough review process give an insight into current trends in research and development among mechatronics 2013 contributing countries with paper topics covering design and modeling of mechatronic systems control and automation signal processing robotics and others keeping in mind the innovation benefits of mechatronics design approach leading to the development production and daily use of machines and devices possessing a certain degree of computer based intelligence quad rotorcraft control develops original control methods for the navigation and hovering flight of an autonomous mini quad rotor robotic helicopter these methods use an imaging system and a combination of inertial and altitude sensors to localize and guide the movement of the unmanned aerial vehicle relative to its immediate environment the history classification and applications of uavs are introduced followed by a description of modelling techniques for quad rotors and the experimental platform itself a control strategy for the improvement of attitude stabilization in quad rotors is then proposed and tested in real time experiments the strategy based on the use low cost components and with experimentally established robustness avoids drift in the uav s angular position by the addition of an internal control loop to each electronic speed controller ensuring that during hovering flight all four motors turn at almost the same speed the quad rotor s euler angles being very close to the origin other sensors like gps or image sensing equipment can be incorporated to perform autonomous positioning or trajectory tracking tasks two vision based strategies each designed to deal with a specific kind of mission are introduced and separately tested the first stabilizes the quad rotor over a landing pad on the ground it extracts the 3 dimensional position using homography estimation and derives translational velocity by optical flow calculation the second combines colour extraction and line detection algorithms to control the quad rotor s 3 dimensional position and achieves forward velocity regulation during a road following task in order to estimate the translational dynamical characteristics of the quad rotor relative position and translational velocity as they evolve within a building or other unstructured gps deprived environment imaging inertial and altitude sensors are combined in a state observer the text give the reader a current view of the problems encountered in uav control specifically those relating to quad rotor flying machines and it will interest researchers and graduate students working in that field the vision based control strategies presented help the reader to a better understanding of how an imaging system can be used to obtain the information required for performance of the hovering and navigation tasks ubiquitous in rotored uav operation this volume contains the proceedings of the 26th international conference on robotics in alpe adria danube region raad 2017 held at the polytechnic university of turin italy from june 21 23 2017 the conference brought together academic and industrial researchers in robotics from 30 countries the majority of them affiliated to the alpe adria danube region and their worldwide partners raad 2017 covered all major areas of r d and innovation in robotics including the latest research trends the book provides an overview on the advances in service and industrial robotics the topics are presented in a sequence starting from the classical robotic subjects such as kinematics dynamics structures control and ending with the newest topics like human robot

interaction and biomedical applications researchers involved in the robotic field will find this an extraordinary and up to date perspective on the state of the art in this area the 13th international conference on human computer interaction hci inter tional 2009 was held in san diego california usa july 19 24 2009 jointly with the symposium on human interface japan 2009 the 8th international conference on engineering psychology and cognitive ergonomics the 5th international conference on universal access in human computer interaction the third international conf ence on virtual and mixed reality the third international conference on internati alization design and global development the third international conference on online communities and social computing the 5th international conference on augmented cognition the second international conference on digital human mod ing and the first international conference on human centered design a total of 4 348 individuals from academia research institutes industry and gove mental agencies from 73 countries submitted contributions and 1 397 papers that were judged to be of high scientific quality were included in the program these papers dress the latest research and development efforts and highlight the human aspects of the design and use of computing systems the papers accepted for presentation thoroughly cover the entire field of human computer interaction addressing major advances in knowledge and effective use of computers in a variety of application areas omnidirectional cameras vision sensors that can capture 360 images have in recent years had growing success in computer vision robotics and the entertainment industry in fact modern omnidirectional cameras are compact lightweight and inexpensive and are thus being integrated in an increasing number of robotic platforms and consumer devices however the special format of output data requires tools that are appropriate for camera calibration signal analysis and image interpretation this book is divided into six chapters written by world renowned scholars in a rigorous yet accessible way the mathematical foundation of omnidirectional vision is presented from image geometry and camera calibration to image processing for central and non central panoramic systems special emphasis is given to fisheye cameras and catadioptric systems which combine mirrors with lenses the main applications of omnidirectional vision including 3d scene reconstruction and robot localization and navigation are also surveyed finally the recent trend towards ai infused methods deep learning architectures and other emerging research directions are discussed time of flight cameras and microsoft kinecttm closely examines the technology and general characteristics of time of flight range cameras and outlines the best methods for maximizing the data captured by these devices this book also analyzes the calibration issues that some end users may face when using these type of cameras for research and suggests methods for improving the real time 3d reconstruction of dynamic and static scenes time of flight cameras and microsoft kinecttm is intended for researchers and advanced level students as a reference guide for time of flight cameras practitioners working in a related field will also find the book valuable this indispensable text introduces the foundations of three dimensional computer vision and describes recent contributions to the field fully revised and updated this much anticipated new edition reviews a range of triangulation based methods including linear and bundle adjustment based approaches to scene reconstruction and camera calibration stereo vision point cloud segmentation and pose estimation of rigid articulated and flexible objects also covered are intensity based techniques that evaluate the pixel grey values in the image to infer three dimensional scene structure and point spread function based approaches that exploit the effect of the optical system the text shows how methods which integrate these concepts are able to increase reconstruction accuracy and robustness describing applications in industrial quality inspection and metrology human robot interaction and remote sensing this book systematically introduces the advancement of transparent soil modelling technique and its application the transparent soil modelling technique provides an essential tool for visualizing soil structure interaction and other geotechnical problems such as grouting soil plugging the geotechnical properties of the newest transparent soils were reported on model sand clay and rock in addition more advanced image processing methods were summarized in this book numerous applications of transparent soil modelling techniques for different

geotechnical problems were presented and the results obtained are supplemented by numerical calculation and theoretical analysis this textbook provides a comprehensive but tutorial introduction to robotics computer vision and control it is written in a light but informative conversational style weaving text figures mathematics and lines of code into a narrative that covers robotics and computer vision separately and together as robotic vision over 1600 code examples show how complex problems can be decomposed and solved using just a few simple lines of code this edition is based on python and is accompanied by fully open source python based toolboxes for robotics and machine vision the new toolboxes enable the reader to easily bring the algorithmic concepts into practice and work with real non trivial problems on a broad range of computing platforms for the beginning student the book makes the algorithms accessible the toolbox code can be read to gain understanding and the examples illustrate how it can be used the code can also be the starting point for new work for practitioners students or researchers by writing programs based on toolbox functions or modifying the toolbox code itself the second edition of a comprehensive introduction to all aspects of mobile robotics from algorithms to mechanisms mobile robots range from the mars pathfinder mission s teleoperated sojourner to the cleaning robots in the paris metro this text offers students and other interested readers an introduction to the fundamentals of mobile robotics spanning the mechanical motor sensory perceptual and cognitive layers the field comprises the text focuses on mobility itself offering an overview of the mechanisms that allow a mobile robot to move through a real world environment to perform its tasks including locomotion sensing localization and motion planning it synthesizes material from such fields as kinematics control theory signal analysis computer vision information theory artificial intelligence and probability theory the book presents the techniques and technology that enable mobility in a series of interacting modules each chapter treats a different aspect of mobility as the book moves from low level to high level details it covers all aspects of mobile robotics including software and hardware design considerations related technologies and algorithmic techniques this second edition has been revised and updated throughout with 130 pages of new material on such topics as locomotion perception localization and planning and navigation problem sets have been added at the end of each chapter bringing together all aspects of mobile robotics into one volume introduction to autonomous mobile robots can serve as a textbook or a working tool for beginning practitioners curriculum developed by dr robert king colorado school of mines and dr james conrad university of north carolina charlotte to accompany the national instruments labview robotics starter kit are available included are 13 6 by dr king and 7 by dr conrad laboratory exercises for using the labview robotics starter kit to teach mobile robotics concepts this book dedicated to professor georgi m dimirovski on his anniversary contains new research directions challenges and many relevant applications related to many aspects within the broadly perceived areas of systems and control including signal analysis and intelligent systems the project comprises two volumes with papers written by well known and very active researchers and practitioners the first volume is focused on more foundational aspects related to general issues in systems science and mathematical systems various problems in control and automation and the use of computational and artificial intelligence in the context of systems modeling and control the second volume is concerned with a presentation of relevant applications notably in robotics computer networks telecommunication fault detection diagnosis as well as in biology and medicine and economic financial and social systems too master matlab r step by step the matlab matrix laboratory computational environment offers a rich set of capabilities to efficiently solve a variety of complex analysis simulation and optimization problems flexible powerful and relatively easy to use the matlab environment has become a standard cost effective tool within the engineering science and technology communities excellent as a self teaching guide for professionals as well as a textbook for students engineering and scientific computations using matlab helps you fully understand the matlab environment build your skills and apply its features to a wide range of applications going beyond traditional matlab user manuals and college texts engineering and scientific

computations using matlab guides you through the most important aspects and basics of matlab programming and problem solving from fundamentals to practice augmenting its discussion with a wealth of practical worked out examples and qualitative illustrations this book demonstrates matlab s capabilities and offers step by step instructions on how to apply the theory to a practical real world problem in particular the book features coverage of a variety of complex physical and engineering systems described by nonlinear differential equations detailed application of matlab to electromechanical systems matlab files scripts and statements as well as simulink models which can be easily modified for application specific problems encountered in practice readable user friendly and comprehensive in scope this is a welcome introduction to matlab for those new to the program and an ideal companion for engineers seeking in depth mastery of the high performance matlab environment this book constitutes the refereed proceedings of the 16th scandinavian conference on image analysis scia 2011 held in ystad sweden in may 2011 the 74 revised full papers presented were carefully reviewed and selected from 140 submissions the papers are organized in topical sections on multiple view geometry segmentation image analysis categorization and classification structure from motion and slam medical and biomedical applications 3d shape medical imaging this book contains the proceedings of the 11th fsr field and service robotics which is the leading single track conference on applications of robotics in challenging environments this conference was held in zurich switzerland from 12 15 september 2017 the book contains 45 full length peer reviewed papers organized into a variety of topics control computer vision inspection machine learning mapping navigation and planning and systems and tools the goal of the book and the conference is to report and encourage the development and experimental evaluation of field and service robots and to generate a vibrant exchange and discussion in the community field robots are non factory robots typically mobile that operate in complex and dynamic environments on the ground earth or other planets under the ground underwater in the air or in space service robots are those that work closely with humans to help them with their lives the first fsr was held in canberra australia in 1997 since that first meeting fsr has been held roughly every two years cycling through asia americas and europe this book gathers the proceedings of the 11th international conference on frontier computing held in seoul on july 13 17 2021 and provides comprehensive coverage of the latest advances and trends in information technology science and engineering it addresses a number of broad themes including communication networks business intelligence and knowledge management intelligence and related fields that inspire the development of information technology the respective contributions cover a wide range of topics database and data mining networking and communications and internet of things embedded systems soft computing social network analysis security and privacy optical communication and ubiquitous pervasive computing many of the papers outline promising future research directions and the book benefits students researchers and professionals alike further it offers a useful reference guide for newcomers to the field artificial intelligence in information and communication technologies healthcare and education a roadmap ahead is designed as a reference text and discusses inter dependability communication and effective control for the betterment of services through artificial intelligence ai as well as the challenges and path ahead for ai in computing and control across different domains of business and human life the book accommodates technologies and application domains including backbone hardware systems and methods for deployment which help incorporating intelligence through different supervised and probabilistic learning approaches features the book attempts to establish a connection between hardware software technologies and algorithmic intelligence for data analysis and decision support in domains such as healthcare education and other aspects of business and mobility it presents various recent applications of artificial intelligence in information and communication technologies such as search and optimization methods machine learning data representation and ontologies and multi agent systems the book provides a collection of different case studies with experimentation results than mere theoretical and generalized approaches covers most of the applications using the trending technologies like machine learning ml

data science ds internet of things iot and underlying information and communication technologies the book is aimed primarily at advanced undergraduates and postgraduate students studying computer science computer applications and information technology researchers and professionals will also find this book useful this book constitutes refereed proceedings of the 26th international workshop frontiers of computer vision iw fcv 2020 held in ibusuki kagoshima japan in february 2020 the 27 full papers presented were thoroughly reviewed and selected from 68 submissions the papers in the volume are organized according to the following topics real world applications face pose and action recognition object detection and tracking inspection and diagnosis camera 3d and imaging up with automated systems for assessment of road condition for example haas et al 1997 developed an automated algorithm for detecting cracks and joints con tion smith and lin 1997 developed a fuzzy logic classification scheme for pavement distress condition oh et al 1997 developed iterative algorithm for overcoming noisy images of roads due to shadows and low light conditions koustsopoulos and mishalani 1997 presented a model for distress assessment in a local microscopic and global macroscopic level using captured images of pavement lee 1993 presented a comparison between 15 different imaging al rithms used in crack detection ground penetration radar gpr has also been used for pavement assessment special computer algorithms were developed for quick analysis of gpr data adeli hung 1993 and maser 1996 heiler and mcneil 1997 proposed a modified system for analyzing the gpr data using an artificial neural network ann 2 3 2 traffic analysis and control currently imaging systems provide essential data for transportation and traffic engineering planning anon 1999 machine vision techniques were introduced to intersection traffic signal control in the late 1970 s chou and sethi 1993 no days many systems have been developed all over the world for traffic analysis and control applications in addition to image based systems for traffic violations nallamathu and wang 1997 developed one of the first automated systems for license plate recognition using character recognition algorithm for the use in monitoring violators at toll stations and many other traffic applications this textbook is designed for postgraduate studies in the field of 3d computer vision it also provides a useful reference for industrial practitioners for example in the areas of 3d data capture computer aided geometric modelling and industrial quality assurance this second edition is a significant upgrade of existing topics with novel findings additionally it has new material covering consumer grade rgb d cameras 3d morphable models deep learning on 3d datasets as well as new applications in the 3d digitization of cultural heritage and the 3d phenotyping of crops overall the book covers three main areas 3d imaging including passive 3d imaging active triangulation 3d imaging active time of flight 3d imaging consumer rgb d cameras and 3d data representation and visualisation 3d shape analysis including local descriptors registration matching 3d morphable models and deep learning on 3d datasets and 3d applications including 3d face recognition cultural heritage and 3d phenotyping of plants 3d computer vision is a rapidly advancing area in computer science there are many real world applications that demand high performance 3d imaging and analysis and as a result many new techniques and commercial products have been developed however many challenges remain on how to analyse the captured data in a way that is sufficiently fast robust and accurate for the application such challenges include metrology semantic segmentation classification and recognition thus 3d imaging analysis and their applications remain a highly active research field that will continue to attract intensive attention from the research community with the ultimate goal of fully automating the 3d data capture analysis and inference pipeline foundations of intelligent systems presents selected papers from the 2013 international conference on intelligent systems and knowledge engineering iske2013 the aim of this conference is to bring together experts from different expertise areas to discuss the state of the art in intelligent systems and knowledge engineering and to present new research results and perspectives on future development the topics in this volume include but not limited to artificial intelligence theories pattern recognition intelligent system models speech recognition computer vision multi agent systems machine learning soft computing and fuzzy systems biological inspired computation game theory cognitive

systems and information processing computational intelligence etc the proceedings are benefit for both researchers and practitioners who want to utilize intelligent methods in their specific research fields dr zhenkun wen is a professor at the college of computer and software engineering shenzhen university china dr tianrui li is a professor at the school of information science and technology southwest jiaotong university xi an china this book contains 38 papers authored by both scientists and practitioners focused on an interdisciplinary approach to the development of cyber physical systems recently our civilization has been facing one of the most severe challenges in modern history the covid 19 pandemic devastated the global economy and significantly disrupted numerous areas of economic activity only radical increase of efficiency and versatility of industrial production with further limitation of human involvement paralleled by the decrease of environmental burden will enable us to cope with such challenges we hope that the presented book provides input to the solution of at least some problems brought about by this challenge this approach relies on the development of measuring techniques robotic and mechatronic systems industrial automation numerical modeling and simulation as well as application of artificial intelligence techniques required by the transformation leading to industry 4 0 in den letzten jahren hat sich der workshop bildverarbeitung für die medizin durch erfolgreiche veranstaltungen etabliert ziel ist auch 2006 wieder die darstellung aktueller forschungsergebnisse und die vertiefung der gespräche zwischen wissenschaftlern industrie und anwendern die beiträge dieses bandes einige in englischer sprache behandeln alle bereiche der medizinischen bildverarbeitung sowie deren klinische anwendungen mathematical modelling and computer simulation have proved tremendously successful in engineering one of the greatest challenges for mechanists is to extend the success of computational mechanics to fields outside traditional engineering in particular to biology biomedical sciences and medicine the proposed workshop will provide an opportunity for computational biomechanics specialists to present and exchange opinions on the opportunities of applying their techniques to computer integrated medicine for example continuum mechanics models provide a rational basis for analysing biomedical images by constraining the solution to biologically reasonable motions and processes biomechanical modelling can also provide clinically important information about the physical status of the underlying biology integrating information across molecular tissue organ and organism scales the main goal of this workshop is to showcase the clinical and scientific utility of computational biomechanics in computer integrated medicine this book constitutes the refereed proceedings of the international workshop on augemented environments for computer assited interventions held in conjunction with miccai 2011 in toronto canada in september 2011 the 13 revised full papers presented were carefully reviewed and selected from 21 submissions the papers cover the following topics image registration and fusion calibration visualisation and 3d perception hardware and optical design real time implementations validation clinical applications and clinical evaluation this journal subline serves as a forum for stimulating and disseminating innovative research ideas theories emerging technologies empirical investigations state of the art methods and tools in all different genres of edutainment such as game based learning and serious games interactive storytelling virtual learning environments vr based education and related fields it covers aspects from educational and game theories human computer interaction computer graphics artificial intelligence and systems design the 6th volume in this series represents a selection of 7 contributions from dmdcm 2011 the 5th international conference on digital media and digital content management held in chongqing china in december 2011 as well as 18 contributions from casa 2011 the 24th international conference on computer animation and social agents held in chengdu china in may 2011 the topics covered are pen based interface urban heat island simulation br based on line expo physically based tree animation 3d face texture stitching chessboard corner extraction textured based tracking motion control motion capture and retargeting path planning physics based animation image based animation behavioral animation artificial life deformation facial animation multi resolution and multi scale models knowledge based animation motion synthesis social agents and avatars emotion and personality virtual humans autonomous actors

ai based animation social and conversational agents inter agent communication social behavior gesture generation crowd simulation animation compression and transmission semantics and ontologies for virtual humans and virtual environments animation analysis and structuring anthropometric virtual human models acquisition and reconstruction of animation data level of details semantic representation of motion and animation medical simulation cultural heritage interaction for virtual humans augmented reality and virtual reality computer games and online virtual worlds the four volume set lncs 7724 7727 constitutes the thoroughly refereed post conference proceedings of the 11th asian conference on computer vision accv 2012 held in daejeon korea in november 2012 the total of 226 contributions presented in these volumes was carefully reviewed and selected from 869 submissions the papers are organized in topical sections on object detection learning and matching object recognition feature representation and recognition segmentation grouping and classification image representation image and video retrieval and medical image analysis face and gesture analysis and recognition optical flow and tracking motion tracking and computational photography video analysis and action recognition shape reconstruction and optimization shape from x and photometry applications of computer vision low level vision and applications of computer vision this book constitutes the refereed conference proceedings of the 8th international conference on image and graphics icig 2015 held in tianjin china in august 2015 the 164 revised full papers and 6 special issue papers were carefully reviewed and selected from 339 submissions the papers focus on various advances of theory techniques and algorithms in the fields of images and graphics the six volume set lncs 11361 11366 constitutes the proceedings of the 14th asian conference on computer vision accv 2018 held in perth australia in december 2018 the total of 274 contributions was carefully reviewed and selected from 979 submissions during two rounds of reviewing and improvement the papers focus on motion and tracking segmentation and grouping image based modeling dep learning object recognition object recognition object detection and categorization vision and language video analysis and event recognition face and gesture analysis statistical methods and learning performance evaluation medical image analysis document analysis optimization methods rgbd and depth camera processing robotic vision applications of computer vision the primary aim of this volume is to provide researchers and engineers from both academic and industry with up to date coverage of new results in the field of robotic welding intelligent systems and automation the book is mainly based on papers selected from the 2014 international conference on robotic welding intelligence and automation rwia 2014 held oct 25 27 2014 at shanghai china the articles show that the intelligentized welding manufacturing iwm is becoming an inevitable trend with the intelligentized robotic welding as the key technology the volume is divided into four logical parts intelligent techniques for robotic welding sensing of arc welding processing modeling and intelligent control of welding processing as well as intelligent control and its applications in engineering this book consists of papers presented at automation 2018 an international conference held in warsaw from march 21 to 23 2018 it discusses the radical technological changes occurring due to the industry 4 0 with a focus on offering a better understanding of the fourth industrial revolution each chapter presents a detailed analysis of interdisciplinary knowledge numerical modeling and simulation as well as the application of cyber physical systems where information technology and physical devices create synergic systems leading to unprecedented efficiency the theoretical results practical solutions and guidelines presented are valuable for both researchers working in the area of engineering sciences and practitioners looking for solutions to industrial problems this book constitutes the thoroughly refereed post workshop proceedings of the 5th international workshop on modelling and simulation for autonomous systems mesas 2018 held in prague czech republic in october 2018 the 46 revised full papers included in the volume were carefully reviewed and selected from 66 submissions they are organized in the following topical sections future challenges of advanced m s technology swarming r d and application m s of intelligent systems ai r d and application axs in context of future warfare and security environment concepts applications training

interoperability etc this book constitutes the thoroughly refereed post workshop proceedings of the second international workshop on modelling and simulation for autonomous systems mesas 2015 held in prague czech republic in april 2015 the 18 revised full papers included in the volume were carefully reviewed and selected from 33 submissions they are organized in the following topical sections state of the art and future of as ms experimental frameworks for as methods and algorithms for as this second edition of the fully revised and updated from photon to pixel presents essential elements in modern digital photographic devices our universal infatuation with photography profoundly affects its usage and development while some sides of photographic culture remain wholly unchanged art photography journalistic and advertising photography scientific photography etc new facets emerge leisure or travel photography everyday life photography anecdotal observational or unusual photography and microcosm or micro community photography with its culmination in the narcissistic selfie these new forms combine an often simplified manner of photographing and modern means of instantaneous remote and mass communication this book does not extend into the sociological study of photography instead it explains how the digital camera works by examining in detail each of the components that constitutes it to provide the reader with a preliminary guide into the inner workings of this device this book constitutes the refereed post conference proceedings of the 23rd iberoamerican congress on pattern recognition ciarp 2018 held in madrid spain in november 2018 the 112 papers presented were carefully reviewed and selected from 187 submissions the program was comprised of 6 oral sessions on the following topics machine learning computer vision classification biometrics and medical applications and brain signals and also on text and character analysis human interaction and sentiment analysis this book constitutes the thoroughly refereed proceedings of the 14th international conference on collaborative computing networking applications and worksharing collaboratecom 2018 held in shanghai china in december 2018 the 43 full and 19 short papers presented were carefully reviewed and selected from 106 submissions the papers reflect the conference sessions as follows vehicular networks social networks information processing data detection and retrieval mobility parallel computing knowledge graph cloud and optimization software testing and formal verification collaborative computing social networks vehicular networks networks and sensors information processing and collaborative computing mobility and software testing and formal verification web services and image information processing web services and remote sensing

Calibration Systems with MATLAB by Examples. Statistical Modeling, Optimization and Design of Experiments

2016-10-21

model based calibration toolbox provides design tools for optimally calibrating complex powertrain systems using statistical modeling and numeric optimization you can define test plans develop statistical models and generate calibrations and lookup tables for complex high degree of freedom engines that would require exhaustive testing using traditional methods by using the toolbox with matlab and simulink you can develop a process for systematically identifying the optimal balance of engine performance missions and fuel economy and reuse statistical models for control design hardware in the loop testing or powertrain simulation

Optimization with Matlab. Calibration Generation (Cage)

2019-10-16

the model based calibration toolbox product contains tools for design of experiment statistical modeling and calibration of complex systems the toolbox has two main apps model browser for design of experiment and statistical modeling cage browser for analytical calibrationthe model browser is a flexible powerful intuitive graphical interface for building and evaluating experimental designs and statistical models cage calibration generation is an easy to use graphical interface for calibrating lookup tables for your electronic control unit ecu as engines get more complicated and models of engine behavior more intricate it is increasingly difficult to rely on intuition alone to calibrate lookup tables cage provides analytical methods for calibrating lookup tables cage uses models of the engine control subsystems to calibrate lookup tables with cage you fill and optimize lookup tables in existing ecu software using models from the model browser part of the model based calibration toolbox product from these models cage builds steady state ecu calibrations cage also compares lookup tables directly to experimental data for validation a feature calibration compares a model of an estimated signal with a lookup table or algebraic collection of tables that estimates the same signal in the ecu cage finds the optimum calibration for the lookup table s for example a typical engine subsystem controls the spark angle to produce the peak torque that is the maximum brake torque mbt spark using the model browser you can build a statistically sound model of mbt spark over a range of engine speeds and relative air charges or loads use the feature calibration to fill a lookup table by comparing the table to the model a tradeoff calibration fills lookup tables by comparing models of different engine characteristics at key operating points for example there are several models of important engine characteristics such as torque and nitrous oxides nox emissions both models depend on the spark angle at a particular operating point a slight reduction of torque can result in a dramatic reduction of nox emissions thus the calibrator uses the value of the spark angle that gives this reduction in nox emissions instead of the spark angle that generates maximum torque cage can optimize calibrations with reference to models including single and multiobjective optimizations sum optimizations user defined optimizations and automated tradeoff

Introduction to Multicopter Design and Control

2017-06-23

this book is the first textbook specially on multicopter systems in the world it provides a comprehensive overview of multicopter systems rather than focusing on a single method or technique the fifteen chapters are divided into five parts covering the topics of multicopter design modeling state estimation control and decision making it differs from other books in the field in three major respects it is basic and practical offering self contained content and presenting hands on methods it is comprehensive and systematic and it is timely it is also closely related to the autopilot that users often employ today and provides insights into the code employed as such it offers a valuable resource for anyone interested in multicopters including students teachers researchers and engineers this introductory text is a welcome addition to the literature on multicopter design and control on which the author is an acknowledged authority the book is directed to advanced undergraduate and beginning graduate students in aeronautical and control or electrical engineering as well as to multicopter designers and hobbyists professor w murray wonham university of toronto this is the single best introduction to multicopter control clear comprehensive and progressing from basic principles to advanced techniques it s a must read for anyone hoping to learn how to design flying robots chris anderson 3d robotics ceo

Proceedings of Mechanical Engineering Research Day 2015

2015-03-31

this e book is a compilation of papers presented at the mechanical engineering research day 2015 merd 15 melaka malaysia on 31 march 2015

Omnidirectional Stereo Vision for Autonomous Vehicles

2015-04-22

mechatronics as the integrating framework of mechanical engineering electrical engineering computer technology control engineering and automation forms a crucial part in the design manufacture and maintenance of a wide range of engineering products and processes the mechatronics itself changes rapidly in last decade from original mixture of subfields into original approach in engineering as a technical discipline the book you are holding is aimed to help the reader to orient in this evolving field of science and technology mechatronics 2013 recent technological and scientific advances is the fourth volume following the previous editions in 2007 2009 and 2011 providing the comprehensive and accessible coverage of advances in mechatronics presented on the 10th international conference mechatronics 2013 hosted this year at the brno university of technology czech republic the contributions that passed the thorough review process give an insight into current trends in research and development among mechatronics 2013 contributing countries with paper topics covering design and modeling of mechatronic systems control and automation signal processing robotics and others keeping in mind the innovation benefits of

mechatronics design approach leading to the development production and daily use of machines and devices possessing a certain degree of computer based intelligence

Mechatronics 2013

2013-09-12

quad rotorcraft control develops original control methods for the navigation and hovering flight of an autonomous mini quad rotor robotic helicopter these methods use an imaging system and a combination of inertial and altitude sensors to localize and guide the movement of the unmanned aerial vehicle relative to its immediate environment the history classification and applications of uavs are introduced followed by a description of modelling techniques for quad rotors and the experimental platform itself a control strategy for the improvement of attitude stabilization in quad rotors is then proposed and tested in real time experiments the strategy based on the use low cost components and with experimentally established robustness avoids drift in the uav s angular position by the addition of an internal control loop to each electronic speed controller ensuring that during hovering flight all four motors turn at almost the same speed the quad rotor s euler angles being very close to the origin other sensors like gps or image sensing equipment can be incorporated to perform autonomous positioning or trajectory tracking tasks two vision based strategies each designed to deal with a specific kind of mission are introduced and separately tested the first stabilizes the quad rotor over a landing pad on the ground it extracts the 3 dimensional position using homography estimation and derives translational velocity by optical flow calculation the second combines colour extraction and line detection algorithms to control the quad rotor s 3 dimensional position and achieves forward velocity regulation during a road following task in order to estimate the translational dynamical characteristics of the quad rotor relative position and translational velocity as they evolve within a building or other unstructured gps deprived environment imaging inertial and altitude sensors are combined in a state observer the text give the reader a current view of the problems encountered in uav control specifically those relating to quad rotor flying machines and it will interest researchers and graduate students working in that field the vision based control strategies presented help the reader to a better understanding of how an imaging system can be used to obtain the information required for performance of the hovering and navigation tasks ubiquitous in rotored uav operation

Quad Rotorcraft Control

2012-08-12

this volume contains the proceedings of the 26th international conference on robotics in alpe adria danube region raad 2017 held at the polytechnic university of turin italy from june 21 23 2017 the conference brought together academic and industrial researchers in robotics from 30 countries the majority of them affiliated to the alpe adria danube region and their worldwide partners raad 2017 covered all major areas of r d and innovation in robotics including the latest research trends the book provides an overview on the advances in service and industrial robotics the topics are presented in a sequence starting from the classical robotic subjects such as kinematics dynamics

structures control and ending with the newest topics like human robot interaction and biomedical applications researchers involved in the robotic field will find this an extraordinary and up to date perspective on the state of the art in this area

Advances in Service and Industrial Robotics

2017-07-24

the 13th international conference on human computer interaction hci inter tional 2009 was held in san diego california usa july 19 24 2009 jointly with the symposium on human interface japan 2009 the 8th international conference on engineering psychology and cognitive ergonomics the 5th international conference on universal access in human computer interaction the third international conf ence on virtual and mixed reality the third international conference on internati alization design and global development the third international conference on online communities and social computing the 5th international conference on augmented cognition the second international conference on digital human mod ing and the first international conference on human centered design a total of 4 348 individuals from academia research institutes industry and gove mental agencies from 73 countries submitted contributions and 1 397 papers that were judged to be of high scientific quality were included in the program these papers dress the latest research and development efforts and highlight the human aspects of the design and use of computing systems the papers accepted for presentation thoroughly cover the entire field of human computer interaction addressing major advances in knowledge and effective use of computers in a variety of application areas

Virtual and Mixed Reality

2009-07-15

omnidirectional cameras vision sensors that can capture 360 images have in recent years had growing success in computer vision robotics and the entertainment industry in fact modern omnidirectional cameras are compact lightweight and inexpensive and are thus being integrated in an increasing number of robotic platforms and consumer devices however the special format of output data requires tools that are appropriate for camera calibration signal analysis and image interpretation this book is divided into six chapters written by world renowned scholars in a rigorous yet accessible way the mathematical foundation of omnidirectional vision is presented from image geometry and camera calibration to image processing for central and non central panoramic systems special emphasis is given to fisheye cameras and catadioptric systems which combine mirrors with lenses the main applications of omnidirectional vision including 3d scene reconstruction and robot localization and navigation are also surveyed finally the recent trend towards ai infused methods deep learning architectures and other emerging research directions are discussed

Omnidirectional Vision

2024-01-11

time of flight cameras and microsoft kinecttm closely examines the technology and general characteristics of time of flight range cameras and outlines the best methods for maximizing the data captured by these devices this book also analyzes the calibration issues that some end users may face when using these type of cameras for research and suggests methods for improving the real time 3d reconstruction of dynamic and static scenes time of flight cameras and microsoft kinecttm is intended for researchers and advanced level students as a reference guide for time of flight cameras practitioners working in a related field will also find the book valuable

Time-of-Flight Cameras and Microsoft KinectTM

2012-03-27

this indispensable text introduces the foundations of three dimensional computer vision and describes recent contributions to the field fully revised and updated this much anticipated new edition reviews a range of triangulation based methods including linear and bundle adjustment based approaches to scene reconstruction and camera calibration stereo vision point cloud segmentation and pose estimation of rigid articulated and flexible objects also covered are intensity based techniques that evaluate the pixel grey values in the image to infer three dimensional scene structure and point spread function based approaches that exploit the effect of the optical system the text shows how methods which integrate these concepts are able to increase reconstruction accuracy and robustness describing applications in industrial quality inspection and metrology human robot interaction and remote sensing

3D Computer Vision

2012-07-23

this book systematically introduces the advancement of transparent soil modelling technique and its application the transparent soil modelling technique provides an essential tool for visualizing soil structure interaction and other geotechnical problems such as grouting soil plugging the geotechnical properties of the newest transparent soils were reported on model sand clay and rock in addition more advanced image processing methods were summarized in this book numerous applications of transparent soil modelling techniques for different geotechnical problems were presented and the results obtained are supplemented by numerical calculation and theoretical analysis

Transparent Soil Modelling Technique and Its Application

2022-11-29

this textbook provides a comprehensive but tutorial introduction to robotics computer vision and control it is written in a light but informative conversational style weaving text figures mathematics and lines of code into a narrative that covers robotics and computer vision separately and together as robotic vision over 1600 code examples show how complex problems can be decomposed and solved using just a few simple lines of code this edition is based on python and is accompanied by fully open source python based toolboxes for robotics and machine vision the new toolboxes enable the reader to easily bring the algorithmic concepts into practice and work with real non trivial problems on a broad range of computing platforms for the beginning student the book makes the algorithms accessible the toolbox code can be read to gain understanding and the examples illustrate how it can be used the code can also be the starting point for new work for practitioners students or researchers by writing programs based on toolbox functions or modifying the toolbox code itself

Robotics, Vision and Control

2023-05-09

the second edition of a comprehensive introduction to all aspects of mobile robotics from algorithms to mechanisms mobile robots range from the mars pathfinder mission s teleoperated sojourner to the cleaning robots in the paris metro this text offers students and other interested readers an introduction to the fundamentals of mobile robotics spanning the mechanical motor sensory perceptual and cognitive layers the field comprises the text focuses on mobility itself offering an overview of the mechanisms that allow a mobile robot to move through a real world environment to perform its tasks including locomotion sensing localization and motion planning it synthesizes material from such fields as kinematics control theory signal analysis computer vision information theory artificial intelligence and probability theory the book presents the techniques and technology that enable mobility in a series of interacting modules each chapter treats a different aspect of mobility as the book moves from low level to high level details it covers all aspects of mobile robotics including software and hardware design considerations related technologies and algorithmic techniques this second edition has been revised and updated throughout with 130 pages of new material on such topics as locomotion perception localization and planning and navigation problem sets have been added at the end of each chapter bringing together all aspects of mobile robotics into one volume introduction to autonomous mobile robots can serve as a textbook or a working tool for beginning practitioners curriculum developed by dr robert king colorado school of mines and dr james conrad university of north carolina charlotte to accompany the national instruments labview robotics starter kit are available included are 13 6 by dr king and 7 by dr conrad laboratory exercises for using the labview robotics starter kit to teach mobile robotics concepts

Introduction to Autonomous Mobile Robots, second edition

2011-02-18

this book dedicated to professor georgi m dimirovski on his anniversary contains new research directions challenges and many relevant applications related to many aspects within the broadly perceived areas of systems and control including signal analysis and intelligent systems the project comprises two volumes with papers written by well known and very active researchers and practitioners the first volume is focused on more foundational aspects related to general issues in systems science and mathematical systems various problems in control and automation and the use of computational and artificial intelligence in the context of systems modeling and control the second volume is concerned with a presentation of relevant applications notably in robotics computer networks telecommunication fault detection diagnosis as well as in biology and medicine and economic financial and social systems too

Complex Systems: Spanning Control and Computational Cybernetics: Applications

2022-09-18

master matlab r step by step the matlab matrix laboratory computational environment offers a rich set of capabilities to efficiently solve a variety of complex analysis simulation and optimization problems flexible powerful and relatively easy to use the matlab environment has become a standard cost effective tool within the engineering science and technology communities excellent as a self teaching guide for professionals as well as a textbook for students engineering and scientific computations using matlab helps you fully understand the matlab environment build your skills and apply its features to a wide range of applications going beyond traditional matlab user manuals and college texts engineering and scientific computations using matlab guides you through the most important aspects and basics of matlab programming and problem solving from fundamentals to practice augmenting its discussion with a wealth of practical worked out examples and qualitative illustrations this book demonstrates matlab s capabilities and offers step by step instructions on how to apply the theory to a practical real world problem in particular the book features coverage of a variety of complex physical and engineering systems described by nonlinear differential equations detailed application of matlab to electromechanical systems matlab files scripts and statements as well as simulink models which can be easily modified for application specific problems encountered in practice readable user friendly and comprehensive in scope this is a welcome introduction to matlab for those new to the program and an ideal companion for engineers seeking in depth mastery of the high performance matlab environment

Engineering and Scientific Computations Using MATLAB

2005-02-04

this book constitutes the refereed proceedings of the 16th scandinavian conference on image analysis scia 2011 held in ystad sweden in may

2011 the 74 revised full papers presented were carefully reviewed and selected from 140 submissions the papers are organized in topical sections on multiple view geometry segmentation image analysis categorization and classification structure from motion and slam medical and biomedical applications 3d shape medical imaging

Image Analysis

2011-05-16

this book contains the proceedings of the 11th fsr field and service robotics which is the leading single track conference on applications of robotics in challenging environments this conference was held in zurich switzerland from 12 15 september 2017 the book contains 45 full length peer reviewed papers organized into a variety of topics control computer vision inspection machine learning mapping navigation and planning and systems and tools the goal of the book and the conference is to report and encourage the development and experimental evaluation of field and service robots and to generate a vibrant exchange and discussion in the community field robots are non factory robots typically mobile that operate in complex and dynamic environments on the ground earth or other planets under the ground underwater in the air or in space service robots are those that work closely with humans to help them with their lives the first fsr was held in canberra australia in 1997 since that first meeting fsr has been held roughly every two years cycling through asia americas and europe

Field and Service Robotics

2017-11-01

this book gathers the proceedings of the 11th international conference on frontier computing held in seoul on july 13 17 2021 and provides comprehensive coverage of the latest advances and trends in information technology science and engineering it addresses a number of broad themes including communication networks business intelligence and knowledge management intelligence and related fields that inspire the development of information technology the respective contributions cover a wide range of topics database and data mining networking and communications and internet of things embedded systems soft computing social network analysis security and privacy optical communication and ubiquitous pervasive computing many of the papers outline promising future research directions and the book benefits students researchers and professionals alike further it offers a useful reference guide for newcomers to the field

Frontier Computing

2022-05-23

artificial intelligence in information and communication technologies healthcare and education a roadmap ahead is designed as a reference text and discusses inter dependability communication and effective control for the betterment of services through artificial intelligence

ai as well as the challenges and path ahead for ai in computing and control across different domains of business and human life the book accommodates technologies and application domains including backbone hardware systems and methods for deployment which help incorporating intelligence through different supervised and probabilistic learning approaches features the book attempts to establish a connection between hardware software technologies and algorithmic intelligence for data analysis and decision support in domains such as healthcare education and other aspects of business and mobility it presents various recent applications of artificial intelligence in information and communication technologies such as search and optimization methods machine learning data representation and ontologies and multi agent systems the book provides a collection of different case studies with experimentation results than mere theoretical and generalized approaches covers most of the applications using the trending technologies like machine learning ml data science ds internet of things iot and underlying information and communication technologies the book is aimed primarily at advanced undergraduates and postgraduate students studying computer science computer applications and information technology researchers and professionals will also find this book useful

Artificial Intelligence in Information and Communication Technologies, Healthcare and Education

2022-12-27

this book constitutes refereed proceedings of the 26th international workshop frontiers of computer vision iw fcv 2020 held in ibusuki kagoshima japan in february 2020 the 27 full papers presented were thoroughly reviewed and selected from 68 submissions the papers in the volume are organized according to the following topics real world applications face pose and action recognition object detection and tracking inspection and diagnosis camera 3d and imaging

Frontiers of Computer Vision

2020-04-27

up with automated systems for assessment of road condition for example haas et al 1997 developed an automated algorithm for detecting cracks and joints con tion smith and lin 1997 developed a fuzzy logic classification scheme for pavement distress condition oh et al 1997 developed iterative algorithm for overcoming noisy images of roads due to shadows and low light conditions koustsopoulos and mishalani 1997 presented a model for distress assessment in a local microscopic and global macroscopic level using captured images of pavement lee 1993 presented a comparison between 15 different imaging al rithms used in crack detection ground penetration radar gpr has also been used for pavement assessment special computer algorithms were developed for quick analysis of gpr data adeli hung 1993 and maser 1996 heiler and mcneil 1997 proposed a modified system for analyzing the gpr data using an artificial neural network ann 2 3 2 traffic analysis and control currently imaging systems provide essential data for transportation and traffic engineering planning anon 1999 machine vision techniques were introduced to intersection traffic signal control in the late 1970 s chou and sethi 1993 no days many systems have been developed all over the world for traffic analysis and control applications in addition to image based systems for traffic violations nallamathu and wang

1997 developed one of the first automated systems for license plate recognition using character recognition algorithm for the use in monitoring violators at toll stations and many other traffic applications

Modelling with Transparent Soils

2010-07-15

this textbook is designed for postgraduate studies in the field of 3d computer vision it also provides a useful reference for industrial practitioners for example in the areas of 3d data capture computer aided geometric modelling and industrial quality assurance this second edition is a significant upgrade of existing topics with novel findings additionally it has new material covering consumer grade rgb d cameras 3d morphable models deep learning on 3d datasets as well as new applications in the 3d digitization of cultural heritage and the 3d phenotyping of crops overall the book covers three main areas 3d imaging including passive 3d imaging active triangulation 3d imaging active time of flight 3d imaging consumer rgb d cameras and 3d data representation and visualisation 3d shape analysis including local descriptors registration matching 3d morphable models and deep learning on 3d datasets and 3d applications including 3d face recognition cultural heritage and 3d phenotyping of plants 3d computer vision is a rapidly advancing area in computer science there are many real world applications that demand high performance 3d imaging and analysis and as a result many new techniques and commercial products have been developed however many challenges remain on how to analyse the captured data in a way that is sufficiently fast robust and accurate for the application such challenges include metrology semantic segmentation classification and recognition thus 3d imaging analysis and their applications remain a highly active research field that will continue to attract intensive attention from the research community with the ultimate goal of fully automating the 3d data capture analysis and inference pipeline

3D Imaging, Analysis and Applications

2020-09-11

foundations of intelligent systems presents selected papers from the 2013 international conference on intelligent systems and knowledge engineering iske2013 the aim of this conference is to bring together experts from different expertise areas to discuss the state of the art in intelligent systems and knowledge engineering and to present new research results and perspectives on future development the topics in this volume include but not limited to artificial intelligence theories pattern recognition intelligent system models speech recognition computer vision multi agent systems machine learning soft computing and fuzzy systems biological inspired computation game theory cognitive systems and information processing computational intelligence etc the proceedings are benefit for both researchers and practitioners who want to utilize intelligent methods in their specific research fields dr zhenkun wen is a professor at the college of computer and software engineering shenzhen university china dr tianrui li is a professor at the school of information science and technology southwest jiaotong university xi an china

Foundations of Intelligent Systems

2014-06-19

this book contains 38 papers authored by both scientists and practitioners focused on an interdisciplinary approach to the development of cyber physical systems recently our civilization has been facing one of the most severe challenges in modern history the covid 19 pandemic devastated the global economy and significantly disrupted numerous areas of economic activity only radical increase of efficiency and versatility of industrial production with further limitation of human involvement paralleled by the decrease of environmental burden will enable us to cope with such challenges we hope that the presented book provides input to the solution of at least some problems brought about by this challenge this approach relies on the development of measuring techniques robotic and mechatronic systems industrial automation numerical modeling and simulation as well as application of artificial intelligence techniques required by the transformation leading to industry 4 0

Automation 2021: Recent Achievements in Automation, Robotics and Measurement Techniques

2021-04-29

in den letzten jahren hat sich der workshop bildverarbeitung für die medizin durch erfolgreiche veranstaltungen etabliert ziel ist auch 2006 wieder die darstellung aktueller forschungsergebnisse und die vertiefung der gespräche zwischen wissenschaftlern industrie und anwendern die beiträge dieses bandes einige in englischer sprache behandeln alle bereiche der medizinischen bildverarbeitung sowie deren klinische anwendungen

Bildverarbeitung für die Medizin 2006

2006-03-06

mathematical modelling and computer simulation have proved tremendously successful in engineering one of the greatest challenges for mechanists is to extend the success of computational mechanics to fields outside traditional engineering in particular to biology biomedical sciences and medicine the proposed workshop will provide an opportunity for computational biomechanics specialists to present and exchange opinions on the opportunities of applying their techniques to computer integrated medicine for example continuum mechanics models provide a rational basis for analysing biomedical images by constraining the solution to biologically reasonable motions and processes biomechanical modelling can also provide clinically important information about the physical status of the underlying biology integrating information across molecular tissue organ and organism scales the main goal of this workshop is to showcase the clinical and scientific utility of computational biomechanics in computer integrated medicine

Computational Biomechanics for Medicine

2010-03-10

this book constitutes the refereed proceedings of the international workshop on augemented environments for computer assited interventions held in conjunction with miccai 2011 in toronto canada in september 2011 the 13 revised full papers presented were carefully reviewed and selected from 21 submissions the papers cover the following topics image registration and fusion calibration visualisation and 3d perception hardware and optical design real time implementations validation clinical applications and clinical evaluation

Augmented Environments for Computer-Assisted Interventions

2012-08-29

this journal subline serves as a forum for stimulating and disseminating innovative research ideas theories emerging technologies empirical investigations state of the art methods and tools in all different genres of edutainment such as game based learning and serious games interactive storytelling virtual learning environments vr based education and related fields it covers aspects from educational and game theories human computer interaction computer graphics artificial intelligence and systems design the 6th volume in this series represents a selection of 7 contributions from dmdcm 2011 the 5th international conference on digital media and digital content management held in chongqing china in december 2011 as well as 18 contributions from casa 2011 the 24th international conference on computer animation and social agents held in chengdu china in may 2011 the topics covered are pen based interface urban heat island simulation br based on line expo physically based tree animation 3d face texture stitching chessboard corner extraction textured based tracking motion control motion capture and retargeting path planning physics based animation image based animation behavioral animation artificial life deformation facial animation multi resolution and multi scale models knowledge based animation motion synthesis social agents and avatars emotion and personality virtual humans autonomous actors ai based animation social and conversational agents inter agent communication social behavior gesture generation crowd simulation animation compression and transmission semantics and ontologies for virtual humans and virtual environments animation analysis and structuring anthropometric virtual human models acquisition and reconstruction of animation data level of details semantic representation of motion and animation medical simulation cultural heritage interaction for virtual humans augmented reality and virtual reality computer games and online virtual worlds

Transactions on Edutainment VI

2011-09-06

the four volume set lncs 7724 7727 constitutes the thoroughly refereed post conference proceedings of the 11th asian conference on computer vision accv 2012 held in daejeon korea in november 2012 the total of 226 contributions presented in these volumes was carefully reviewed

and selected from 869 submissions the papers are organized in topical sections on object detection learning and matching object recognition feature representation and recognition segmentation grouping and classification image representation image and video retrieval and medical image analysis face and gesture analysis and recognition optical flow and tracking motion tracking and computational photography video analysis and action recognition shape reconstruction and optimization shape from x and photometry applications of computer vision low level vision and applications of computer vision

Computer Vision -- ACCV 2012

2013-03-27

this book constitutes the refereed conference proceedings of the 8th international conference on image and graphics icig 2015 held in tianjin china in august 2015 the 164 revised full papers and 6 special issue papers were carefully reviewed and selected from 339 submissions the papers focus on various advances of theory techniques and algorithms in the fields of images and graphics

Image and Graphics

2015-08-03

the six volume set lncs 11361 11366 constitutes the proceedings of the 14th asian conference on computer vision accv 2018 held in perth australia in december 2018 the total of 274 contributions was carefully reviewed and selected from 979 submissions during two rounds of reviewing and improvement the papers focus on motion and tracking segmentation and grouping image based modeling dep learning object recognition object recognition object detection and categorization vision and language video analysis and event recognition face and gesture analysis statistical methods and learning performance evaluation medical image analysis document analysis optimization methods rgbd and depth camera processing robotic vision applications of computer vision

Computer Vision – ACCV 2018

2019-05-28

the primary aim of this volume is to provide researchers and engineers from both academic and industry with up to date coverage of new results in the field of robotic welding intelligent systems and automation the book is mainly based on papers selected from the 2014 international conference on robotic welding intelligence and automation rwia 2014 held oct 25 27 2014 at shanghai china the articles show that the intelligentized welding manufacturing iwm is becoming an inevitable trend with the intelligentized robotic welding as the key technology the volume is divided into four logical parts intelligent techniques for robotic welding sensing of arc welding processing modeling and intelligent control of welding processing as well as intelligent control and its applications in engineering

Robotic Welding, Intelligence and Automation

2015-07-15

this book consists of papers presented at automation 2018 an international conference held in warsaw from march 21 to 23 2018 it discusses the radical technological changes occurring due to the industry 4 0 with a focus on offering a better understanding of the fourth industrial revolution each chapter presents a detailed analysis of interdisciplinary knowledge numerical modeling and simulation as well as the application of cyber physical systems where information technology and physical devices create synergic systems leading to unprecedented efficiency the theoretical results practical solutions and guidelines presented are valuable for both researchers working in the area of engineering sciences and practitioners looking for solutions to industrial problems

Automation 2018

2018-03-07

this book constitutes the thoroughly refereed post workshop proceedings of the 5th international workshop on modelling and simulation for autonomous systems mesas 2018 held in prague czech republic in october 2018 the 46 revised full papers included in the volume were carefully reviewed and selected from 66 submissions they are organized in the following topical sections future challenges of advanced m s technology swarming r d and application m s of intelligent systems ai r d and application axs in context of future warfare and security environment concepts applications training interoperability etc

Modelling and Simulation for Autonomous Systems

2019-03-15

this book constitutes the thoroughly refereed post workshop proceedings of the second international workshop on modelling and simulation for autonomous systems mesas 2015 held in prague czech republic in april 2015 the 18 revised full papers included in the volume were carefully reviewed and selected from 33 submissions they are organized in the following topical sections state of the art and future of as ms experimental frameworks for as methods and algorithms for as

Modelling and Simulation for Autonomous Systems

2015-08-08

this second edition of the fully revised and updated from photon to pixel presents essential elements in modern digital photographic

devices our universal infatuation with photography profoundly affects its usage and development while some sides of photographic culture remain wholly unchanged art photography journalistic and advertising photography scientific photography etc new facets emerge leisure or travel photography everyday life photography anecdotal observational or unusual photography and microcosm or micro community photography with its culmination in the narcissistic selfie these new forms combine an often simplified manner of photographing and modern means of instantaneous remote and mass communication this book does not extend into the sociological study of photography instead it explains how the digital camera works by examining in detail each of the components that constitutes it to provide the reader with a preliminary guide into the inner workings of this device

From Photon to Pixel

2017-04-18

this book constitutes the refereed post conference proceedings of the 23rd iberoamerican congress on pattern recognition ciarp 2018 held in madrid spain in november 2018 the 112 papers presented were carefully reviewed and selected from 187 submissions the program was comprised of 6 oral sessions on the following topics machine learning computer vision classification biometrics and medical applications and brain signals and also on text and character analysis human interaction and sentiment analysis

Progress in Pattern Recognition, Image Analysis, Computer Vision, and Applications

2019-03-02

this book constitutes the thoroughly refereed proceedings of the 14th international conference on collaborative computing networking applications and worksharing collaboratecom 2018 held in shanghai china in december 2018 the 43 full and 19 short papers presented were carefully reviewed and selected from 106 submissions the papers reflect the conference sessions as follows vehicular networks social networks information processing data detection and retrieval mobility parallel computing knowledge graph cloud and optimization software testing and formal verification collaborative computing social networks vehicular networks networks and sensors information processing and collaborative computing mobility and software testing and formal verification web services and image information processing web services and remote sensing

Collaborative Computing: Networking, Applications and Worksharing

2019-02-06

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