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Internal Combustion Engines Automotive Control Systems **Introduction to C++ Programming and Graphics Undocumented Secrets of MATLAB-Java Programming Advances in Network Security and Applications One Dimensional Analysis Program for Scramjet and Ramjet Flowpaths Advances in Materials, Mechanics and Manufacturing II Applications Interface Programming Using Multiple Languages** *Electric and Plug-In Hybrid Vehicles* **Advances in Web-Based Learning – ICWL 2013 Workshops Proceedings of the Multi-Conference 2011 MATLAB Recipes** *Euro-Par' 99 Parallel Processing* **P?w?r ?y?t?m ?nd M?d?lling R?l?y?** *Classical and Modern Controls with Microcontrollers* **Some Research Results on Bridge Health Monitoring, Maintenance and Safety Unlocking the Power of OPNET Modeler Applied Informatics and Communication, Part II Advances in Engineering Design and Optimization III Resilient Infrastructure** Python in Neuroscience Advances in Electronic Engineering, Communication and Management Vol.2 Soft Computing for Hybrid Intelligent Systems *Multi-body Dynamics* Development of an Object-Orientated DEVS-Simulator with MATLAB® Simulation and Optimization of the Currency in a Matlab Model. Visualization of the Currency and the Voltage in Dependency of the Anchors Force Advanced Design and Manufacture III **Quantitative Structural Geology** Modeling **MATLAB ICCAP 2021** *Advances in Interdisciplinary Engineering* Understanding Digital Signal Processing with MATLAB® and Solutions Modeling and Simulation of Systems Using MATLAB and Simulink *NASA Tech Briefs Formal Methods for Industrial Critical Systems Languages and Compilers for Parallel Computing* **Sketch-based Interfaces and Modeling** *Learned Brain Self-Regulation for Emotional Processing and Attentional Modulation: From Theory to Clinical Applications* **Parallel Processing for Jet Engine Control**

Soft Computing for Hybrid Intelligent Systems Dec 09 2020 We describe in this book, new methods and applications of hybrid intelligent systems using soft computing techniques. Soft Computing (SC) consists of several intelligent computing paradigms, including fuzzy logic, neural networks, and evolutionary al- rithms, which can be used to produce powerful hybrid intelligent systems. The book is organized in five main parts, which contain a group of papers around a similar subject. The first part consists of papers with the main theme of intelligent control, which are basically papers that use hybrid systems to solve particular problems of control. The second part contains papers with the main theme of pattern recognition, which are basically papers using soft computing techniques for achieving pattern recognition in different applications. The third part contains papers with the themes of intelligent agents and social systems, which are papers that apply the ideas of agents and social behavior to solve real-world problems. The fourth part contains papers that deal with the hardware implementation of intelligent systems for solving particular problems. The fifth part contains papers that deal with modeling, simulation and optimization for real-world applications.

Parallel Processing for Jet Engine Control Jun 22 2019 Parallel Processing Applications for Jet Engine Control is a volume in the new Advances in Industrial Control series, edited by Professor M.J. Grimble and Dr. M.A. Johnson of the Industrial Control Unit, University of Strathclyde. The book describes the mapping and load balancing of gas turbine engine and controller simulations onto arrays of transputers. It compares the operating system for transputers and the Uniform System upon the Butterfly Plus computer. The problem of applying formal methods to parallel asychronous processors is addressed, implementing novel fault tolerant systems to meet real-time flight control requirements. The book presents real-time closed-loop results highlighting the advantages and disadvantages of Occam and the transputer. Readers will find that this book provides valuable material for researchers in both academia and the aerospace industry.

Euro-Par' 99 Parallel Processing Oct 19 2021 Euro-Parisaninternationalconferencededicatedtothepromotionandadvan- ment of all aspects of parallel computing. The major themes can be divided into the broad categories of hardware, software, algorithms and applications for p- allel computing. The objective of Euro-Par is to provide a forum within which to promote the development of parallel computing both as an industrial te- nique and an academic discipline, extending the frontier of both the state of the art and the state of the practice. This is particularly important at a time when parallel computing is undergoing strong and sustained development and experiencing real industrial take-up. The main audience for and participants in Euro-Parareseenasresearchersinacademicdepartments,governmentlabora- ries and industrial organisations. Euro-Par's objective is to become the primary choice of such professionals for the presentation of new results in their specic areas. Euro-Par is also interested in applications which demonstrate the e - tiveness of the main Euro-Par themes. There is now a permanent Web site for the series http://brahms. fmi. uni-passau. de/cl/europar where the history of the conference is described. Euro-Par is now sponsored by the Association of Computer Machinery and the International Federation of Information Processing. Euro-Par'99 The format of Euro-Par'99follows that of the past four conferences and consists of a number of topics eachindividually monitored by a committee of four. There were originally 23 topics for this year's conference. The call for papers attracted 343 submissions of which 188 were accepted. Of the papers accepted, 4 were judged as distinguished, 111 as regular and 73 as short papers.

Internal Combustion Engines Oct 31 2022 Since the publication of the Second Edition in 2001, there have been considerable advances and developments in the field of internal combustion engines. These include the increased importance of biofuels, new internal combustion processes, more stringent emissions requirements and characterization, and more detailed engine performance modeling, instrumentation, and control. There have also been changes in the instructional methodologies used in the applied thermal sciences that require inclusion in a new edition. These methodologies suggest that an increased focus on applications, examples, problem-based learning, and computation will have a positive effect on learning of the material, both at the novice student, and practicing engineer level. This Third Edition mirrors its predecessor with additional tables, illustrations, photographs, examples, and problems/solutions. All of the software is 'open source', so that readers can see how the computations are performed. In addition to additional java applets, there is companion Matlab code, which has become a default computational tool in most mechanical engineering programs.

One Dimensional Analysis Program for Scramjet and Ramjet Flowpaths May 26 2022 This book is intended for aerospace engineering students as well as professional aerospace engineers who are interested in Scramjet and Ramjet propulsion technology. Conceptual analysis are an important part of Scramjet/Ramjet propulsion technology and this book talks about the basics of Scramjet and Ramjet propulsion as well as one-dimensional analyis program. Plenty of MATLAB, Fortran, CFD analysis and thermodynamic analysis is also provided for the student/engineers. This book is a must for any aerospace engineer who wants an introductory material for Scramjet and Ramjet propulsion along with analysis program. Rohan M Ganapathy, Prof. Pradhapraj and Prof. Pradeep Johnson discuss the various scenarios for Scramjet propulsion and flowpath analysis program in this book.

Advances in Engineering Design and Optimization III Apr 12 2021 These are the proceedings of the third International Conference on Engineering Design and Optimization (ICEDO 2012), held on May 25-27th 2012 in Shaoxing (P.R. China). Volume is indexed by Thomson Reuters CPCI-S (WoS). The 278 peer-reviewed papers are grouped into 4 chapters: Engineering Design - Theory and Practice; Product Design and Development; Manufacturing Systems Modeling and Optimization; Advanced Machining and Materials Processing Technology

Advances in Materials, Mechanics and Manufacturing II Apr 24 2022 This book reports on innovative materials research with a special emphasis on methods, modeling, and simulation tools for analyzing material behavior, emerging materials, and composites, and their applications in the field of manufacturing. Chapters are based on contributions to the third International Conference on Advanced Materials Mechanics and Manufacturing, A3M2021, organized by the Laboratory of Mechanics, Modeling, and Manufacturing (LA2MP) of the National School of Engineers of Sfax, Tunisia and held online on March 25-27, 2021. They cover a variety of topics, spanning from experimental analysis of material plasticity and fatigue, numerical simulation of material behavior, and optimization of manufacturing processes, such as cutting and injection, among others. Offering a good balance of fundamental research and industrially relevant findings, they provide researchers and professionals with a timely snapshot of and extensive information on current developments in the field and a source of inspiration for future research and collaboration.

MATLAB Recipes Nov 19 2021 Learn from state-of-the-art examples in robotics, motors, detection filters, chemical processes, aircraft, and spacecraft. This is a practical reference for industry engineers using MATLAB to solve everyday problems. With MATLAB Recipes: A Problem-Solution Approach you will review contemporary MATLAB coding including the latest language features and use MATLAB as a software development environment including code organization, GUI development, and algorithm design and testing. This book provides practical guidance for using MATLAB to build a body of code you can turn to time and again for solving technical problems in your line of work. Develop algorithms, test them, visualize the results, and pass the code along to others to create a functional code base for your firm.

Advances in Web-Based Learning – ICWL 2013 Workshops Jan 22 2022 This book constitutes the refereed proceedings of the Workshops held at the ICWL 2013 International Conference on Web Based Learning in Kenting, Taiwan, in October 2013. The 29 papers presented were carefully reviewed and selected for inclusion in this volume. They were held at the following workshops: First International Workshop on Ubiquitous Social Learning, USL 2013; 2013 International Workshop on Smart Living and Learning, IWSLL 2013; Third International Symposium on Knowledge Management and e-Learning, KMEL 2013; 2013 International Workshop on Cloud Computing for Web-Based Learning, IWCL 2013; 2013 International Workshop on Web Intelligence and Learning; WIL 2013; and the 2013 International Workshop on e-book and Education Cloud, IWEEC 2013.

Proceedings of the Multi-Conference 2011 Dec 21 2021 The International Conference on Signals, Systems and Automation (ICSSA 2011) aims to spread awareness in

the research and academic community regarding cutting-edge technological advancements revolutionizing the world. The main emphasis of this conference is on dissemination of information, experience, and research results on the current topics of interest through in-depth discussions and participation of researchers from all over the world. The objective is to provide a platform to scientists, research scholars, and industrialists for interacting and exchanging ideas in a number of research areas. This will facilitate communication among researchers in different fields of Electronics and Communication Engineering. The International Conference on Intelligent System and Data Processing (ICISD 2011) is organized to address various issues that will foster the creation of intelligent solutions in the future. The primary goal of the conference is to bring together worldwide leading researchers, developers, practitioners, and educators interested in advancing the state of the art in computational intelligence and data processing for exchanging knowledge that encompasses a broad range of disciplines among various distinct communities. Another goal is to promote scientific information interchange between researchers, developers, engineers, students, and practitioners working in India and abroad.

Advanced Design and Manufacture III Aug 05 2020 Volume is indexed by Thomson Reuters CPCI-S (WoS).

Formal Methods for Industrial Critical Systems Oct 26 2019 This book constitutes the proceedings of the 26th International Workshop on Formal Methods for Industrial Critical Systems, FMICS 2021, which was held during August 24-26, 2021. The conference was planned to take place in Pairs, France. Due to the COVID-19 pandemic it changed to a virtual event. The 10 full papers and 6 short papers presented in this volume were carefully reviewed and selected from 31 submissions. The papers are organized in topical sections as follows: Verification, Program Safety and Education, (Event-)B Modeling and Validation, Formal Analysis, Tools, Test Generation and Probabilistic Verification.

Development of an Object-Orientated DEVS-Simulator with MATLAB® Oct 07 2020 Inhaltsangabe:Abstract: To solve problems of real world systems using scientific methods, the model-based approach is an effective and widely used method. To help rebuilding a system properly, there exist formalistic descriptions of systems behavior. One of several system specification formalisms, the DEVS formalism and associated abstract simulator algorithms provide the bases of this work. The DEVS formalism offers ways to describe systems which change their state driven by events at discrete times. Several implementations for computer aided simulation based on the DEVS formalism and associated abstract simulator concepts using object-orientated programming languages exist. One of those implementations, the MatlabDEVS simulation runtime system was modified and improved during this project and MatlabDEVS2, a modified version was developed. To make improvement possible, a proper understanding of the fundamental theories is indispensable. Hence, they are exhibited as a part of this work. Because the modeler should be supported by the computer application while passing the process of modeling and simulation, the user interfaces are crucial for the quality of the system. The existing MatlabDEVS system did not offer any support for modeling and simulation, as well as it was not well documented. Object orientated programming within the MATLAB® programming environment results in a complicated file structure representing the classes. This fact cannot be influenced. Hence, a GUI for modeling and simulation which creates the source code files for the classes was implemented. The DEVS (Discrete Event Systems Specification) formalism introduced and developed by Zeigler is a formalistic way of describing systems which are subjects to event-driven changes of system states. An example for such a system could be any kind of sales office where something happens, if a customer arrives at the shop. The system then changes state, which means that the salesman is busy, or if he was already, the waiting queue grows. After a given time the customer is served and the system changes state again. Characteristically, the time base for such a system is continuous, this means a customer could arrive at any time not just at discrete times. The DEVS formalism and associated simulator concepts have been implemented for simulation means in different ways using several object-orientated programming languages. To gain acquaintance of this field, first the general rules for [...]

NASA Tech Briefs Nov 27 2019

Simulation and Optimization of the Currency in a Matlab Model. Visualization of the Currency and the Voltage in Dependency of the Anchors Force Sep 05 2020 Research Paper (undergraduate) from the year 2014 in the subject Engineering - Mechanical Engineering, grade: 1.3, Pforzheim University, course: Electric Machines, language: English, abstract: The present work is about the design of a linear magnet for an artificial heart in the "Konstruktionsseminar Summer term 2014" at the University of Applied Science HS Pforzheim. This work is one part of three different topics about the heart in the course "electric machines". It covers the simulation and optimization of the engine from an artificial heart using a linear magnet or further named solenoid. In the winter term 2013, the last semester, a group of students already designed a virtual prototype of the heart and the magnet. But they could not meet the weight requirements therefore the goal and the focus in the "Konstruktionsseminar Summer term 2014" was to lower the total weight. However, no analyses had been made of the movement of the anchor and pushing the blood into the chamber. To lower the weight and to raise the power of the solenoid by an exchange of the material, the whole system will be more dynamic as before. To get an optimum of a low weight plus having a dynamic system, which can be controlled by changing the voltage and therefore the currency, the system is getting into an idly condition.

Languages and Compilers for Parallel Computing Sep 25 2019 This book constitutes the thoroughly refereed post-conference proceedings of the 29th International Workshop on Languages and Compilers for Parallel Computing, LCPC 2016, held in Rochester, NY, USA, in September 2016. The 20 revised full papers presented together with 4 short papers were carefully reviewed. The papers are organized in topical sections on large scale parallelism, resilience and persistence, compiler analysis and optimization, dynamic computation and languages, GPUs and private memory, and runt-time and performance analysis.

Resilient Infrastructure Mar 12 2021 This book presents the select proceedings of the Virtual Conference on Disaster Risk Reduction (VCDRR 2021). This book discusses various relevant topics such as Disaster resilience and Infrastructure, Risk reduction and structural measures, Evidence based approach for DRR Case studies, Numerical modelling and Constructions methods, Prevention Methods and Safety Engineering, Cross cutting issue in DRR and Infrastructure etc. The book is also a comprehensive volume on multi-hazards and their management for a sustainable built environment. This book will be useful for academicians, research scholars and industry professionals working in the area of civil engineering and disaster management.

Modeling and Simulation of Systems Using MATLAB and Simulink Dec 29 2019 Not only do modeling and simulation help provide a better understanding of how real-world systems function, they also enable us to predict system behavior before a system is actually built and analyze systems accurately under varying operating conditions. Modeling and Simulation of Systems Using MATLAB® and Simulink® provides comprehensive, state-of-the-art coverage of all the important aspects of modeling and simulating both physical and conceptual systems. Various real-life examples show how simulation plays a key role in understanding real-world systems. The author also explains how to effectively use MATLAB and Simulink software to successfully apply the modeling and simulation techniques presented. After introducing the underlying philosophy of systems, the book offers step-by-step procedures for modeling different types of systems using modeling techniques, such as the graph-theoretic approach, interpretive structural modeling, and system dynamics modeling. It then explores how simulation evolved from pre-computer days into the current science of today. The text also presents modern soft computing techniques, including artificial neural networks, fuzzy systems, and genetic algorithms, for modeling and simulating complex and nonlinear systems. The final chapter addresses discrete systems modeling. Preparing both undergraduate and graduate students for advanced modeling and simulation courses, this text helps them carry out effective simulation studies. In addition, graduate students should be able to comprehend and conduct simulation research after completing this book.

Advances in Electronic Engineering, Communication and Management Vol.2 Jan 10 2021 This volume presents the main results of 2011 International Conference on Electronic Engineering, Communication and Management (EECM2011) held December 24-25, 2011, Beijing China. The EECM2011 is an integrated conference providing a valuable opportunity for researchers, scholars and scientists to exchange their ideas face to face together. The main focus of the EECM 2011 and the present 2 volumes "Advances in Electronic Engineering, Communication and Management" is on Power Engineering, Electrical engineering applications, Electrical machines, as well as Communication and Information Systems Engineering. This volume presents the main results of 2011 International Conference on Electronic Engineering, Communication and Management (EECM2011) held December 24-25, 2011, Beijing China. The EECM2011 is an integrated conference providing a valuable opportunity for researchers, scholars and scientists to exchange their ideas face to face together. The main focus of the EECM 2011 and the present 2 volumes "Advances in Electronic Engineering, Communication and Management" is on Power Engineering, Electrical engineering applications, Electrical machines, as well as Communication and Information Systems Engineering.

Classical and Modern Controls with Microcontrollers Aug 17 2021 This book focuses on the design, implementation and applications of embedded systems and advanced industrial controls with microcontrollers. It combines classical and modern control theories as well as practical control programming codes to help readers learn control techniques easily and effectively. The book covers both linear and nonlinear control techniques to help readers understand modern control strategies. The author provides a detailed description of the practical considerations and applications in linear and nonlinear control systems. They concentrate on the ARM® Cortex®-M4 MCU system built by Texas InstrumentsTM called TM4C123GXL, in which two ARM® Cortex®-M4 MCUs, TM4C123GH6PM, are utilized. In order to help the reader develop and build application control software for a specified microcontroller unit. Readers can quickly develop and build their applications by using sample project codes provided in the book to access specified peripherals. The book enables readers to transfer from one interfacing protocol to another, even if they only have basic and fundamental understanding and basic knowledge of one interfacing function. Classical and Modern Controls with Microcontrollers is a powerful source of information for control and systems engineers looking to expand their programming knowledge of C, and of applications of embedded systems with microcontrollers. The book is a textbook for college students majored in CE, EE and ISE to learn and study classical and modern control technologies. The book can also be adopted as a reference book for professional programmers working in modern control fields or related to intelligent controls and embedded computing and applications. Advances in Industrial Control reports and encourages the transfer of technology in control engineering. The rapid development of control technology has an impact on all areas of the control discipline. The series offers an opportunity for researchers to present an extended exposition of new work in all aspects of industrial control.

ICCAP 2021 Mar 31 2020 This proceeding constitutes the thoroughly refereed proceedings of the 1st International Conference on Combinatorial and Optimization,

ICCAP 2021, December 7-8, 2021. This event was organized by the group of Professors in Chennai. The Conference aims to provide the opportunities for informal conversations, have proven to be of great interest to other scientists and analysts employing these mathematical sciences in their professional work in business, industry, and government. The Conference continues to promote better understanding of the roles of modern applied mathematics, combinatorics, and computer science to acquaint the investigator in each of these areas with the various techniques and algorithms which are available to assist in his or her research. We selected 257 papers were carefully reviewed and selected from 741 submissions. The presentations covered multiple research fields like Computer Science, Artificial Intelligence, internet technology, smart health care etc., brought the discussion on how to shape optimization methods around human and social needs.

Unlocking the Power of OPNET Modeler Jun 14 2021 For fast, easy modeling, this practical guide provides all the essential information you need to know. A wide range of topics is covered, including custom protocols, programming in C++, External Model Access (EMA) modeling and co-simulation with external systems, giving you the guidance not provided in the OPNET documentation. A set of high-level wrapper APIs is also included to simplify programming custom OPNET models, whether you are a newcomer to OPNET or an experienced user needing to model efficiently. From the basic to the advanced, you will find topics are easy to follow with theory kept to a minimum, many practical tips and answers to frequently asked questions spread throughout the book and numerous step-by-step case studies and real-world network scenarios included.

P?w?r ?y?t?m ?nd M?d?lling R?l?y? Sep 17 2021 Num?ri??l r?l?y? ?r? th? r??ult ?f th? ?ppli??ti?n ?f mi?r?pr??????r t??hn?l?gy in r?l?yindu?try.Num?ri??l r?l?y? h?v? th? ?bility t? ??mmuni??t? with it? p??r?, ?r????n?mi??l ?nd ?r? ???y t? ?p?r?t?, ?dju?t ?nd r?p?ir.M?d?ling ?f digit?l ?ndnum?ri??l r?l?y? i? imp?rt?nt t? ?dju?t ?nd ??ttl? pr?t??ti?n ?quipm?nt in ?l??tri??lf??iliti?? ?nd t? tr?in pr?t??ti?n p?r??nn?l. D??igning ?f num?ri??l r?l?y? i? ?mpl?y?dt? pr?du?? n?w pr?t?typ?? ?nd pr?t??ti?n ?lg?rithm?. ??mput?r m?d?l? ?f num?ri??lr?l?y? f?r th? ?tudy ?f pr?t??ti?n ?y?t?m? ?r? gr??tly ?nh?n??d wh?n w?rking ?l?ng with?n ?l??tr?m?gn?ti? tr?n?i?nt pr?gr?m (?mtp). ? lit?r?tur? ?urv?y h?? r?v??l?d th?tpr?vi?u? m?d?ling t??hniqu?? pr???nt?d ? l??k ?f ?ut?m?ti?n in th? g?n?r?ti?n ?f r?l?ym?d?l?, ?r ?h?w high ??mpl?xity in linking th? num?ri??l r?l?y m?d?l? with th? p?w?r?y?t?m m?d?l?d in th? ?mtp.Thi? th??i? d???rib?? ? n?w ?ppr???h ?f m?d?ling ?nd d??igning ?f num?ri??l r?l?y?.Th? pr?p???d m?th?d?l?gy ?mpl?y? ? Vi?u?l ?++-b???d pr?gr?m (PL??) t? ?bt?infr?m th? u??r th? ?p??ifi??ti?n? ?f th? r?l?y t? b? d??ign?d, ?nd t? pr????? thi?inf?rm?ti?n t? g?n?r?t? th? F?RTR?N ??d? th?t r?pr???nt? th? fun?ti?n?l bl??k? ?f th?r?l?y. Thi? g?n?r?t?d ??d? i? in??rp?r?t?d in ? P???D/?MTD? ???? u?ing ? r???ur????ll?d ??mp?n?nt, whi?h f??ilit?t?? th? ?r??ti?n ?f u??r-?u?t?m m?d?l? inP???D/?MTD?. ?n?/?ni?nt ?l??tri??l ?nd ?lgi??l ?ign?l? ?r? ??nn??t?d t? th? input??nd ?utput? ?f th? P???D/?MTD? ??mp?n?nt.Furth?r ?dditi?n? ?f digit?l r?l?ym?d?l? int? th? P???D/?MTD? ???? ??n?titut? th? pr?t??ti?n ?y?t?m m?d?l. Th?th??i? d???rib?? ? pr???dur? f?r d??igning di?t?n?? ?nd diff?r?nti?l r?l?y m?d?l?, but th?m?th?d?l?gy m?y b? ?xt?nd?d t? d??ign m?d?l? ?f ?th?r r?l?y ?l?m?nt?.? numb?r ?f pr?t??ti?n ?y?t?m ?tudi?? w?r? p?rf?rm?d with th? ?tru?tur? ?r??t?d withth? pr?p???d m?th?d?l?gy. ?dju?tm?nt ?f di?t?n?? ?nd diff?r?nti?l r?l?y? w?r? ?tudi?d.R?l?y p?rf?rm?n?? und?r ?T ??tur?ti?n ?nd th? ?ff??t? ?f th? r?m?v?l ?f ?nti-?li??ing?n?l?g filt?r w?r? inv??tig?t?d.L???l ?nd r?m?t? b??kup di?t?n?? pr?t??ti?n ?fiitr?n?mi??i?n lin?? w?? ?imul?t?d. Th? ?dju?tm?nt ?f diff?r?nti?l pr?t??ti?n ?f p?w?rtr?n?f?rm?r t? ?v?r??m? th? ?ff??t? ?f inru?h ?urr?nt w?? p?rf?rm?d. P?w?r tr?n?f?rm?rdiff?r?nti?l pr?t??ti?n r??p?n??? t? int?rn?l ?nd ?xt?rn?l f?ult? w?r? ??n?id?r?d.?dditi?n?lly, ? ??t ?f t??t? w?r? p?rf?rm?d t? inv??tig?t? th? ??n?i?t?n?y ?f th? r?l?ym?d?l? g?n?r?t?d with th? pr?p???d m?th?d?l?gy.Th? r??ult? ?h?w?d th?t th?num?ri??l r?l?y m?d?l? r??p?nd ??ti?f??t?rily ????rding with th? ?xp??t?d r??ult? ?f th?t??t?.

Electric and Plug-In Hybrid Vehicles Feb 20 2022 This book is designed as an interdisciplinary platform for specialists working in electric and plug-in hybrid electric vehicles powertrain design and development, and for scientists who want to get access to information related to electric and hybrid vehicle energy management, efficiency and control. The book presents the methodology of simulation that allows the specialist to evaluate electric and hybrid vehicle powertrain energy flow, efficiency, range and consumption. The mathematics behind each electric and hybrid vehicle component is explained and for each specific vehicle the powertrain is analyzed and output results presented through the use of specific automotive industrial software (AVL Cruise , IPG CarMaker, AVL Concerto). This methodology of electric and hybrid powertrain design serves to broaden understanding of how the energy flow, efficiency, range and consumption of these vehicles can be adjusted, updated and predicted via development processes.

Multi-body Dynamics Nov 07 2020 Multi-body dynamics describes the physics of motion of an assembly of constrained or restrained bodies. As such it encompasses the behaviour of nearly every living or inanimate object in the universe. Multi-body dynamics - Monitoring and Simulation Techniques III includes papers from leading academic researchers, professional code developers, and practising engineers, covering recent fundamental advances in the field, as well as applications to a host of problems in industry.They broadly cover the areas: Multi-body methodology Structural dynamics Engine dynamics Vehicle dynamics - ride and handling Machines and mechanisms Multi-body Dynamics is a unique volume, describing the latest developments in the field, supplemented by the latest enhancements in computer simulations, and experimental measurement techniques. Leading industrialists explain the importance attached to these developments in industrial problem solving.

Sketch-based Interfaces and Modeling Aug 24 2019 The field of sketch-based interfaces and modeling (SBIM) is concerned with developing methods and techniques to enable users to interact with a computer through sketching - a simple, yet highly expressive medium. SBIM blends concepts from computer graphics, human-computer interaction, artificial intelligence, and machine learning. Recent improvements in hardware, coupled with new machine learning techniques for more accurate recognition, and more robust depth inferencing techniques for sketch-based modeling, have resulted in an explosion of both sketch-based interfaces and pen-based computing devices. Presenting the first coherent, unified overview of SBIM, this unique text/reference bridges the two complementary research areas of user interaction (sketch-based interfaces), and graphical modeling and construction (sketch-based modeling). The book discusses the state of the art of this rapidly evolving field, with contributions from an international selection of experts. Also covered are sketch-based systems that allow the user to manipulate and edit existing data - from text, images, 3D shapes, and video - as opposed to modeling from scratch. Topics and features: reviews pen/stylus interfaces to graphical applications that avoid reliance on user interface modes; describes systems for diagrammatic sketch recognition, mathematical sketching, and sketch-based retrieval of vector drawings; examines pen-based user interfaces for engineering and educational applications; presents a set of techniques for sketch recognition that rely strictly on spatial information; introduces the Teddy system; a pioneering sketching interface for designing free-form 3D models; investigates a range of advanced sketch-based systems for modeling and designing 3D objects, including complex contours, clothing, and hair-styles; explores methods for modeling from just a single sketch or using only a few strokes. This text is an essential resource for researchers, practitioners and graduate students involved in human-factors and user interfaces, interactive computer graphics, and intelligent user interfaces and AI.

Understanding Digital Signal Processing with MATLAB® and Solutions Jan 28 2020 The book discusses receiving signals that most electrical engineers detect and study. The vast majority of signals could never be detected due to random additive signals, known as noise, that distorts them or completely overshadows them. Such examples include an audio signal of the pilot communicating with the ground over the engine noise or a bioengineer listening for a fetus' heartbeat over the mother's. The text presents the methods for extracting the desired signals from the noise. Each new development includes examples and exercises that use MATLAB to provide the answer in graphic forms for the reader's comprehension and understanding.

Modeling Jun 02 2020 Automotive systems engineering addresses the system throughout its life cycle, including requirement, specification, design, implementation, verification and validation of systems, modeling, simulation, testing, manufacturing, operation and maintenance. This book - the third in a series of four volumes on this subject - features 11 papers, published between 1999-2010, that address the challenges and importance of systems modeling, stressing the use of advanced tools and approaches. Topics covered include: Automotive systems modeling Model-based design culture Applications

Python in Neuroscience Feb 08 2021 Python is rapidly becoming the de facto standard language for systems integration. Python has a large user and developer-base external to theneuroscience community, and a vast module library that facilitates rapid and maintainable development of complex and intricate systems. In this Research Topic, we highlight recent efforts to develop Python modules for the domain of neuroscience software and neuroinformatics: - simulators and simulator interfaces - data collection and analysis - sharing, re-use, storage and databasing of models and data - stimulus generation - parameter search and optimization - visualization - VLSI hardware interfacing. Moreover, we seek to provide a representative overview of existing mature Python modules for neuroscience and neuroinformatics, to demonstrate a critical mass and show that Python is an appropriate choice of interpreter interface for future neuroscience software development.

Introduction to C++ Programming and Graphics Aug 29 2022 This book offers a venue for rapidly learning the language of C++ by concisely revealing its grammar, syntax and main features, and by explaining the key ideas behind object oriented programming (OOP) with emphasis on scientific computing. The book reviews elemental concepts of computers and computing, describes the primary features of C++, illustrates the use of pointers and user-defined functions, analyzes the construction of classes, and discusses graphics programming based on VOGLE and OpenGL. In short, the book is a basic, concise introduction to C++ programming for everyone from students to scientists and engineers seeking a quick grasp of key topics.

Some Research Results on Bridge Health Monitoring, Maintenance and Safety Jul 16 2021 Volume is indexed by Thomson Reuters BCI (WoS). This special topic volume encompasses some aspects of bridge health monitoring, maintenance and safety. Specifically, it deals with: bridge health monitoring; bridge repair and rehabilitation issues; bridge related safety and other implications. The objective was to introduce recent research results in the fields of bridge health monitoring, bridge maintenance and safety from the mainland of China.

Applications Interface Programming Using Multiple Languages Mar 24 2022 Annotation This book provides a detailed description about the practical considerations in multiple languages programming as well as the interfaces among different languages in the Window environment. Authentic examples and detailed explanations are combined together in this book to provide the readers a clear picture as how to handle the multiple languages programming in Windows.

Advances in Interdisciplinary Engineering Feb 29 2020 This book presents select proceedings of the International Conference on Future Learning Aspects of Mechanical

Engineering (FLAME 2018). The book discusses interdisciplinary areas such as automobile engineering, mechatronics, applied and structural mechanics, bio-mechanics, biomedical instrumentation, ergonomics, biodynamic modeling, nuclear engineering, agriculture engineering, and farm machineries. The contents of the book will benefit both researchers and professionals.

Advances in Network Security and Applications Jun 26 2022 This book constitutes the proceedings of the 4th International Conference on Network Security and Applications held in Chennai, India, in July 2011. The 63 revised full papers presented were carefully reviewed and selected from numerous submissions. The papers address all technical and practical aspects of security and its applications for wired and wireless networks and are organized in topical sections on network security and applications, ad hoc, sensor and ubiquitous computing, as well as peer-to-peer networks and trust management.

Applied Informatics and Communication, Part II May 14 2021 The five volume set CCIS 224-228 constitutes the refereed proceedings of the International conference on Applied Informatics and Communication, ICAIC 2011, held in Xi'an, China in August 2011. The 446 revised papers presented were carefully reviewed and selected from numerous submissions. The papers cover a broad range of topics in computer science and interdisciplinary applications including control, hardware and software systems, neural computing, wireless networks, information systems, and image processing.

Quantitative Structural Geology Jul 04 2020 A pioneering single-semester undergraduate textbook that balances descriptive and quantitative analysis of geological structures.

MATLAB May 02 2020

Learned Brain Self-Regulation for Emotional Processing and Attentional Modulation: From Theory to Clinical Applications Jul 24 2019 Mounting evidence in the last years has demonstrated that self-regulation of brain activity can successfully be achieved by neurofeedback (NF). These methodologies have constituted themselves as new tools for cognitive neuroscience establishing causal links between voluntary brain activations and cognition and behavior, and as potential novel approaches for clinical applications in severe neuropsychiatric disorders (e.g. schizophrenia, depression, Parkinson´s disease, etc.). Current developments of brain imaging-based neurofeedback include the study of the behavioral modifications and neural reorganization produced by learned regulation of the activity of circumscribed brain regions and neuronal network activations. In a rapidly developing field, many open questions and controversies have arisen, i.e. choosing the proper experimental design, the adequate use of control conditions and subjects, the mechanism of learning involved in brain self-regulation, and the still unexplored potential long-lasting effect on brain reorganization and clinical alleviation, among others. This special issue on self-regulation of the brain of emotion and attention using NF approaches interested authors to report technical and methodological advances, scientific investigations in understanding the relation between brain activity and behaviour using NF, and finally studies developing clinical treatment of emotional and attentional disorders. The editors of this special issue anticipate rapid developments in this emerging field.

Undocumented Secrets of MATLAB-Java Programming Jul 28 2022 For a variety of reasons, the MATLAB®-Java interface was never fully documented. This is really quite unfortunate: Java is one of the most widely used programming languages, having many times the number of programmers and programming resources as MATLAB. Also unfortunate is the popular claim that while MATLAB is a fine programming platform for prototyping, it is not suitable for real-world, modern-looking applications. Undocumented Secrets of MATLAB®-Java Programming aims to correct this misconception. This book shows how using Java can significantly improve MATLAB program appearance and functionality, and that this can be done easily and even without any prior Java knowledge. Readers are led step-by-step from simple to complex customizations. Code snippets, screenshots, and numerous online references are provided to enable the utilization of this book as both a sequential tutorial and as a random-access reference suited for immediate use. Java-savvy readers will find it easy to tailor code samples for their particular needs; for Java newcomers, an introduction to Java and numerous online references are provided. This book demonstrates how The MATLAB programming environment relies on Java for numerous tasks, including networking, data-processing algorithms and graphical user-interface (GUI) We can use MATLAB for easy access to external Java functionality, either third-party or user-created Using Java, we can extensively customize the MATLAB environment and application GUI, enabling the creation of visually appealing and usable applications

Automotive Control Systems Sep 29 2022 This textbook introduces advanced control systems for vehicles, including advanced automotive concepts and the next generation of vehicles for ITS.