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Modelling Command and Control - Neville A. Stanton 2017-10-23

Since its inception, just after the Second World War, Human Factors research has paid special attention to the issues surrounding human control of systems. Command and control environments continue to represent a

challenging domain for human factors research. Modelling Command and Control takes a broad view of command and control research, to include C2 (command and control), C3 (command, control and communication), and C4 (command, control, communication and computers) as well as human supervisory control

paradigms. The book presents case studies in diverse military applications (for example, land, sea and air) of command and control. The book explores the differences and similarities in the land, sea and air domains; the theoretical and methodological developments, approaches to system and interface design, and the workload and situation awareness issues involved. It places the role of humans as central and distinct from other aspects of the system. Using extensive case study material, Modelling Command and Control demonstrates how the social and technical domains interact, and why each require equal treatment and importance in the future.

Systematic (software) Innovation - Darrell L. Mann 2008

EMOOCs 2021 - Julien Jacquemin 2021
From June 22 to June 24, 2021, Hasso Plattner Institute, Potsdam, hosted the seventh European MOOC Stakeholder Summit (EMOOCs 2021)

together with the eighth ACM Learning@Scale Conference. Due to the COVID-19 situation, the conference was held fully online. The boost in digital education worldwide as a result of the pandemic was also one of the main topics of this year's EMOOCs. All institutions of learning have been forced to transform and redesign their educational methods, moving from traditional models to hybrid or completely online models at scale. The learnings, derived from practical experience and research, have been explored in EMOOCs 2021 in six tracks and additional workshops, covering various aspects of this field. In this publication, we present papers from the conference's Experience Track, the Policy Track, the Business Track, the International Track, and the Workshops.

ICIE 2017 - Proceedings of the 5th International Conference on Innovation and Entrepreneurship - Dr Kamarulzaman Ab. Aziz 2017
Proceedings of the 5th International Conference

on Innovation and Entrepreneurship held in Cyberjaya, Malaysia on 26th-27th April 2017. [Adaptive Structures](#) - David Wagg 2008-04-09 Adaptive structures have the ability to adapt, evolve or change their properties or behaviour in response to the environment around them. The analysis and design of adaptive structures requires a highly multi-disciplinary approach which includes elements of structures, materials, dynamics, control, design and inspiration taken from biological systems. Development of adaptive structures has been taking place in a wide range of industrial applications, but is particularly advanced in the aerospace and space technology sector with morphing wings, deployable space structures; piezoelectric devices and vibration control of tall buildings. Bringing together some of the foremost world experts in adaptive structures, this unique text: includes discussions of the application of adaptive structures in the aerospace, military, civil engineering structures, automotive and

MEMS. presents the impact of biological inspiration in designing adaptive structures, particularly the use of hierarchy in nature, which typically induces multi-functional behavior. sets the agenda for future research in adaptive structures in one distinctive single volume. Adaptive Structures: Engineering Applications is essential reading for engineers and scientists working in the fields of intelligent materials, structural vibration, control and related smart technologies. It will also be of interest to senior undergraduate and postgraduate research students as well as design engineers working in the aerospace, mechanical, electrical and civil engineering sectors.

21st Century Manufacturing - National Research Council 2013-09-27

The Manufacturing Extension Partnership (MEP) - a program of the U.S. Department of Commerce's National Institute of Standards and Technology - has sought for more than two decades to strengthen American manufacturing.

It is a national network of affiliated manufacturing extension centers and field offices located throughout all fifty states and Puerto Rico. Funding for MEP Centers comes from a combination of federal, state, local and private resources. Centers work directly with manufacturing firms in their state or sub-state region. MEP Centers provide expertise, services and assistance directed toward improving growth, supply chain positioning, leveraging emerging technologies, improving manufacturing processes, work force training, and the application and implementation of information in client companies through direct assistance provided by Center staff and from partner organizations and third party consultants. 21st Century Manufacturing seeks to generate a better understanding of the operation, achievements, and challenges of the MEP program in its mission to support, strengthen, and grow U.S. manufacturing. This report identifies and reviews similar national

programs from abroad in order to draw on foreign practices, funding levels, and accomplishments as a point of reference and discusses current needs and initiatives in light of the global focus on advanced manufacturing, **40 Principles** - Genrich Altshuller 2002

On the Move to Meaningful Internet Systems 2007: OTM 2007 Workshops - Zahir Tari 2007-11-16

This two-volume set LNCS 4805/4806 constitutes the refereed proceedings of 10 international workshops and papers of the OTM Academy Doctoral Consortium held as part of OTM 2007 in Vilamoura, Portugal, in November 2007. The 126 revised full papers presented were carefully reviewed and selected from a total of 241 submissions to the workshops. The first volume begins with 23 additional revised short or poster papers of the OTM 2007 main conferences.

Determinants of Innovation - Alfred

Kleinknecht 1996-11-08

Micro-econometric analyses cover a wide range of new innovation 'input' and 'output' indicators. Among the robust findings about determinants of innovation is evidence on the importance of technological opportunity, of appropriability of innovation benefits, and of Schmooklerian demand-pull effects. As opposed to the evidence from standard R&D data, small firms appear more innovative and the impact of market power on innovation is, in the best case, modest.

Bui l di ng Ski ns Christian Schittich 2006-01-01
The external facades of a building are more than a protective mantle, or an intelligent skin regulating temperature and light, they also determine its very appearance. By unusual choices of materials and the use of complex technology, facades have become increasingly significant in recent years. External surfaces are being perceived as an integral part of the building and are therefore being designed as such. This volume focuses on the wide-ranging

aspects of facade design, from the selection and use of materials to the advanced technical possibilities now open to the architect. A wide array of carefully selected international examples show the theory in the practice. All plans, details, and large scale sections of the facades have been researched with the high degree of competence typical of the editorial staff from the review Detail. Expert authors provide the essential information needed to plan and design facades and elucidate on the latest developments in technology and materials.

The Science of Footwear - Ravindra S.

Goonetilleke 2012-11-06

Although we now have sophisticated algorithms and techniques for determining the shapes and sizes and for matching the fit between shoes and feet, few, if any, of the books currently available cover these new technologies until now.

Bringing together high-quality and state-of-the-art contributions from designers, biomechanists, ergonomists, engineer

Design & Nature IVC. A. Brebbia 2008
Design in engineering and science has often been inspired by nature. This has been more evident in recent years, after a period during which our civilization thought in terms of taming rather than working in harmony with nature. The consequences of that approach are still with us and have resulted in a world increasingly homogenized, lacking in biodiversity and with increased pollution. Mankind has been slow to learn and even slower to apply the lessons that nature offers, in spite of the urgency of our predicament. This book contains papers presented at the fourth International Conference on Comparing Design in Nature with Science and Engineering . The emphasis of this Volume is on engineering and architectural applications and on biomimetics, reflecting in some measure current interest in finding environmentally friendly solutions which also optimize the use of natural resources. The contributions have been arranged into the following topics: Biomimetics;

Shape and Form in Engineering Nature; Nature and Architectural Design; Natural Materials and Surfaces; Complexity; and Education.
And Suddenly the Inventor Appeared Genrich Altshuller 1996

Sustainable Development Goals and Sustainable Supply Chains in the Post-global Economy - Natalia Yakovleva
2019-05-21

This book presents a collection of studies on current best practices for delivering sustainable development policies within supply chains. It critiques the limitations of existing business theory and practice on sustainable supply chain management, and discusses opportunities for new conceptual models for businesses to engage with Sustainable Development Goals (SDGs). It examines how businesses can work towards implementing Sustainable Development Goals in the contexts of entrepreneurial initiative, industry collaboration and regional

development. SDGs renew the sustainable development agenda for global communities and ask businesses and organisations to reset their sustainable development policies. A strategy to embed sustainable development principles into business operations along the supply chain operations, which has been a conceptual and, in many instances, practitioner, business and industry achievement of the past decades, is not enough to shift the economic and social conditions of poor populations around the world. How would the global supply chains of the future look like? What social relations does it envisage? How will businesses and organisations engage with societies, environments and complex institutional contexts in emerging markets and developing countries, which are faced with issues of population growth, needed leaps in infrastructure provision, educational and health improvements, cultural and institutional shifts? The book challenges current approaches to sustainable supply chain practices guided by

discussion on SDGs. It reviews implementation issues of existing sustainable development approaches, assesses the advancement of sustainable development strategies and examines the opportunities for global value chains to increase their positive social and environmental inputs in regions, communities and organisations. The book collects both conceptual and empirical studies set in a variety of business and organisational contexts, such as manufacturing, retail, procurement, cities and industrial parks. It contests the accepted axioms of sustainable practices in the global supply chains and proposes new models for organisations and production networks to engage with societies and address market and production effects on communities and institutions.

Airborne Wind Energy - Roland Schmehl

2018-03-31

This book provides in-depth coverage of the latest research and development activities

concerning innovative wind energy technologies intended to replace fossil fuels on an economical basis. A characteristic feature of the various conversion concepts discussed is the use of tethered flying devices to substantially reduce the material consumption per installed unit and to access wind energy at higher altitudes, where the wind is more consistent. The introductory chapter describes the emergence and economic dimension of airborne wind energy. Focusing on “Fundamentals, Modeling & Simulation”, Part I includes six contributions that describe quasi-steady as well as dynamic models and simulations of airborne wind energy systems or individual components. Shifting the spotlight to “Control, Optimization & Flight State Measurement”, Part II combines one chapter on measurement techniques with five chapters on control of kite and ground stations, and two chapters on optimization. Part III on “Concept Design & Analysis” includes three chapters that present and analyze novel harvesting concepts

as well as two chapters on system component design. Part IV, which centers on “Implemented Concepts”, presents five chapters on established system concepts and one chapter about a subsystem for automatic launching and landing of kites. In closing, Part V focuses with four chapters on “Technology Deployment” related to market and financing strategies, as well as on regulation and the environment. The book builds on the success of the first volume “Airborne Wind Energy” (Springer, 2013), and offers a self-contained reference guide for researchers, scientists, professionals and students. The respective chapters were contributed by a broad variety of authors: academics, practicing engineers and inventors, all of whom are experts in their respective fields.

Handbook of Ocean Wave Energy - Arthur Pecher 2016-12-07

This book is open access under a CC BY-NC 2.5 license. This book offers a concise, practice-oriented reference-guide to the field of ocean

wave energy. The ten chapters highlight the key rules of thumb, address all the main technical engineering aspects and describe in detail all the key aspects to be considered in the techno-economic assessment of wave energy converters. Written in an easy-to-understand style, the book answers questions relevant to readers of different backgrounds, from developers, private and public investors, to students and researchers. It is thereby a valuable resource for both newcomers and experienced practitioners in the wave energy sector.

Mechatronic Futures - Peter Hehenberger
2016-06-10

Offering a comprehensive overview of the challenges, risks and options facing the future of mechatronics, this book provides insights into how these issues are currently assessed and managed. Building on the previously published book 'Mechatronics in Action,' it identifies and discusses the key issues likely to impact on

future mechatronic systems. It supports mechatronics practitioners in identifying key areas in design, modeling and technology and places these in the wider context of concepts such as cyber-physical systems and the Internet of Things. For educators it considers the potential effects of developments in these areas on mechatronic course design, and ways of integrating these. Written by experts in the field, it explores topics including systems integration, design, modeling, privacy, ethics and future application domains. Highlighting novel innovation directions, it is intended for academics, engineers and students working in the field of mechatronics, particularly those developing new concepts, methods and ideas.

Innovative Business Management Using TRIZ -
Sunil Kumar V. Kaushik 2018-01-02

TRIZ is the Russian acronym for theory of inventive problem solving. The basic assumption behind this theory is □someone somewhere has already solved your problem or a very similar

problem, and all we need to do is apply the same principle to the current problem and solve it similarly. It guides you to think in a specific direction rather than getting lost. The goal of this book is to use some of the simple TRIZ tools to help readers immediately solve problems, innovate, be creative, think, and discover the joy of experiencing the thinking process in new dimensions that you might not have previously. It is specifically focused on helping nonengineering and management professionals to apply the concepts of TRIZ immediately and reap benefits. Interspersed throughout the book are vignettes from the author's round-the-world bicycle tour on a budget of less than five U.S. dollars per day, having conducted close to 50 workshops and training sessions and trained more than 1,000 professionals on TRIZ without any remuneration throughout 21 countries, including Thailand, Laos, Vietnam, China, Kyrgyzstan, Uzbekistan, Turkmenistan, Iran, Turkey, Georgia, Armenia, Greece, Italy, France,

Spain, and Portugal.

Parallel Kinematic Machines - C.R. Boer

2012-12-06

Parallel Kinematic Machines (PKMs) are one of the most radical innovations in production equipment. They attempt to combine the dexterity of robots with the accuracy of machine tools to respond to several industrial needs. This book contains the proceedings of the first European-American Forum on Parallel Kinematic Machines, held in Milan, Italy from 31 August - 1 September 1998. The Forum was established to provide institutions, technology suppliers and industrial end users with an improved understanding of the real advantages to be gained from using PKMs. This book contributes to a mid-term strategy oriented to reduce time to market and costs, improve production flexibility and minimize environmental impacts to increase worldwide competitiveness. In particular the authors focus on enabling technologies and emerging concepts for future manufacturing

applications of PKMs. Topics include: Current status of PKM R&D in Europe, the USA and Asia. Industrial requirements, roadblocks and application opportunities. Research issues and possibilities. Industrial applications and requirements.

Biomimetics -- Materials, Structures and Processes - Petra Gruber 2011-07-06

The book presents an outline of current activities in the field of biomimetics and integrates a variety of applications comprising biophysics, surface sciences, architecture and medicine. Biomimetics as innovation method is characterised by interdisciplinary information transfer from the life sciences to technical application fields aiming at increased performance, functionality and energy efficiency. The contributions of the book relate to the research areas: - Materials and structures in nanotechnology and biomaterials - Biomimetic approaches to develop new forms, construction principles and design methods in architecture -

Information and dynamics in automation, neuroinformatics and biomechanics Readers will be informed about the latest research approaches and results in biomimetics with examples ranging from bionic nano-membranes to function-targeted design of tribological surfaces and the translation of natural auditory coding strategies.

Business Performance Measurement and Management - Paolo Taticchi 2010-01-22

Measuring and managing the performance of a business is one of the most genuine desires of management. Balanced scorecard, the performance prism and activity-based management are the most popular frameworks in this setting. Based on the findings of R.G. Eccles' acclaimed "Performance Measurement Manifesto (1991)" this book introduces new contexts and themes of application and presents emerging research areas related to business performance measurement and management, e.g. SMEs and sustainability. As a result of the

1st International Summer School Piero Lunghi on "Perspectives of Business Performance Management" this book is written both for students and academics, as well as for practitioners looking for new, yet proven ways to measure and manage business performance.

Calm, Alert and Learning - Stuart Shanker 2013

Recent research tells us that one of the keys to student success is self-regulation - the ability to monitor and modify emotions, to focus or shift attention, to control impulses, to tolerate frustration or delay gratification. But can a child's ability to self-regulate be improved? Canada's leading expert on self-regulation, Dr. Stuart Shanker, knows it can and that, as educators, we have an important role to play in helping students' develop this crucial ability. Distinguished Research Professor at York University and Past President of the Council for Early Child Development, Dr. Shanker leads us through an exploration of the five major

domains--what they are, how they work, what they look like in the classroom, and what we can do to help students strengthen in that domain.

Cognitive Work Analysis: Coping with Complexity- Daniel P. Jenkins 2017-09-18

'Complex sociotechnical systems' are systems made up of numerous interacting parts, both human and non-human, operating in dynamic, ambiguous and safety critical domains. Cognitive Work Analysis (CWA) is a structured framework specifically developed for considering the development and analysis of these complex socio-technical systems. Unlike many human factors approaches, CWA does not focus on how human-system interaction should proceed (normative modelling) or how human-system interaction currently works (descriptive modelling). Instead, through a focus on constraints, it develops a model of how work can be conducted within a given work domain, without explicitly identifying specific sequences of actions (formative modelling). The framework

leads the analyst to consider the environment the task takes place within, and the effect of the imposed constraints on the way work can be conducted. It provides guidance through the process of answering the questions of why the system exists, what activities can be conducted within the domain as well as how these activities can be achieved, and who can perform them. The first part of the book contains a comprehensive description of CWA, introducing it to the uninitiated. It then presents a number of applications in complex military domains to explore and develop the benefits of CWA. Unlike much of the previous literature, particular attention is placed on exploring the CWA framework in its entirety. This holistic approach focuses on the system environment, the activity that takes place within it, the strategies used to conduct this activity, the way in which the constituent parts of the system (both human and non-human) interact and the behaviour required. Each stage of this analysis identifies the

constraints governing the system; it is contended that through this holistic understanding of constraints, recommendations can be made for the design of system interaction; increasing the ability of users to cope with unanticipated, unexpected situations. This book discusses the applicability of the approach in system analysis, development and evaluation. It provides process to what was previously a loosely defined framework.

Turbomachinery - Rama S.R. Gorla 2003-08-12
Turbomachinery presents the theory and design of turbomachines with step-by-step procedures and worked-out examples. This comprehensive reference emphasizes fundamental principles and construction guidelines for enclosed rotators and contains end-of-chapter problem and solution sets, design formulations, and equations for clear understanding of key aspects in machining function, selection, assembly, and construction. Offering a wide range of illustrative examples, the book evaluates the

components of incompressible and compressible fluid flow machines and analyzes the kinematics and dynamics of turbomachines with valuable definitions, diagrams, and dimensionless parameters.

Studying Designers'05 -

Decision Making in Engineering Design -

Evangelos Papageorgiou 2018-12-13

This book presents an operational tool for decision making under uncertainty in any engineering design. It synthesizes classical decision making methods, such as multi-attribute utility theory, analytic hierarchy process with game theory and quantum decision theory. It demonstrates the implementation of the value driven design philosophy in the engineering design framework. Value, related to the designed system's capabilities and lifecycle cost, is used to compare different alternatives through the appropriate value model. Game Theory as an optimization tool is used to

successfully address the stakeholders' preferences in a functional outcome-focused way. A Quantum-based Decision Making model is also developed to capture the complexity of human decision making related with risk attitude in the presence of ambiguity and uncertainty. Apart from rationality, the decision makers' biases, emotions and subjective feelings are also captured in this model.

Biotechnologies and Biomimetics for Civil Engineering -

Fernando Pacheco Torgal
2014-08-16

Putting forward an innovative approach to solving current technological problems faced by human society, this book encompasses a holistic way of perceiving the potential of natural systems. Nature has developed several materials and processes which both maintain an optimal performance and are also totally biodegradable, properties which can be used in civil engineering. Delivering the latest research findings to building industry professionals and

other practitioners, as well as containing information useful to the public, 'Biotechnologies and Biomimetics for Civil Engineering' serves as an important tool to tackle the challenges of a more sustainable construction industry and the future of buildings.

Creative Solutions for a Sustainable Development - Yuri Borgianni 2021-09-15

This book constitutes the refereed proceedings of the 21st International TRIZ Future Conference on Automated Invention for Smart Industries, TFC 2021, held virtually in September 2021 and sponsored by IFIP WG 5.4. The 28 full papers and 8 short papers presented were carefully reviewed and selected from 48 submissions. They are organized in the following thematic sections: inventiveness and TRIZ for sustainable development; TRIZ, intellectual property and smart technologies; TRIZ: expansion in breadth and depth; TRIZ, data processing and artificial intelligence; and TRIZ

use and divulgation for engineering design and beyond. Chapter 'Domain Analysis with TRIZ to Define an Effective "Design for Excellence' is available open access under a Creative Commons Attribution 4.0 International License via link.springer.com.

Bacterial Resistance to Antimicrobials, Second Edition - Richard G. Wax 2007-12-05

The enormous genetic flexibility of bacteria jeopardizes the usefulness of currently available antibiotics, and requires new approaches to antibiotic discovery and development. Antimicrobial resistance can be acquired in a short time frame, both by genetic mutation and by direct transfer of resistance genes across genus and species boundaries. Understanding mechanisms of resistance is crucial to the future of antimicrobial therapy. Extensively revised, with contributions from international leaders in their fields, Bacterial Resistance to Antimicrobials, Second Edition blends scientific and practical approaches to the social,

economic, and medical issues related to this growing problem. The book begins with a history of antimicrobial agents and bacterial resistance, and outlines the forces that contributed to the abuse of antibiotics and precipitated the current crisis. It goes on to describe what is known about the ecology of antibiotic resistant bacteria and reveals the inadequacies in our understanding. Emphasizing public health aspects, the editors stress that significant progress will be made only by addressing the problem only as a public, worldwide, problem. Chapters on resistance mechanisms describe the latest findings on what makes different groups of bacteria susceptible or resistant to antibiotics. They reveal the staggering diversity of bacteria and the need for a foundational understanding that will stimulate development of antibiotics capable of avoiding resistance mechanisms. Examining the success and limitations of complementary approaches, such as combining β -lactam antibiotics with β -lactamase inhibitors,

the book brings together information on resistance mechanisms in different groups of bacteria to help future efforts to more effectively develop and deploy antimicrobial therapies.

Neisseria gonorrhoeae Infections - María-Teresa Pérez-Gracia 2021-05-11

Gonorrhoea is a sexually transmitted infection caused by the obligate human pathogen "Neisseria gonorrhoeae". This Gram-negative diplococcus is highly infective due to its virulence factors: pili, Por proteins, Opa proteins, Rmp proteins, lipooligosaccharides and IgA protease. Despite existing guidelines for its treatment, the incidence of the disease follows an increasing trend worldwide. This is mainly due to the appearance of antibiotic-resistant strains, inefficient diagnostic methods and poor sexual education. Without an effective vaccine available, the key priorities for the control of the disease include sexual education, contact notification, epidemiological surveillance, diagnosis and effective antibiotic treatment. This

Special Issue focuses on some of these important issues such as the molecular mechanisms of the disease, diagnostic tests and different treatment strategies used to combat gonorrhoea.

Parallel Robots. P. Merlet 2006-07-01

Parallel robots are closed-loop mechanisms presenting very good performances in terms of accuracy, velocity, rigidity and ability to manipulate large loads. They have been used in a large number of applications ranging from astronomy to flight simulators and are becoming increasingly popular in the field of machine-tool industry. This book presents a complete synthesis of the latest results on the possible mechanical architectures, analysis and synthesis of this type of mechanism. It is intended to be used by students (with over 150 exercises and numerous internet addresses), researchers (with over 650 references and anonymous ftp access to the code of some algorithms presented in this book) and engineers (for which practical results, mistakes to avoid, and applications are

presented). Since the publication of the first edition (2000) there has been an impressive increase in terms of study and use of this kind of structure that are reported in this book. This second edition has been completely overhauled. The initial chapter on kinematics has been split into Inverse Kinematics and Direct Kinematics. A new chapter on calibration was added. The other chapters have also been rewritten to a large extent. The reference section has been updated to include around 45% new works that appeared after the first edition.

Artificial Intelligence in Design. J. Gero 1986.

Gero 2012-12-06

Change is one of the most significant parameters in our society. Designers are amongst the primary change agents for any society. As a consequence design is an important research topic in engineering and architecture and related disciplines, since design is not only a means of change but is also one of the keystones to economic competitiveness and the

fundamental precursor to manufacturing. The development of computational models founded on the artificial intelligence paradigm has provided an impetus for much of current design research -both computational and cognitive. These forms of design research have only been carried out in the last decade or so and in the temporal sense they are still immature. Notwithstanding this immaturity, noticeable advances have been made both in extending our understanding of design and in developing tools based on that understanding. Whilst many researchers in the field of artificial intelligence in design utilise ideas about how humans design as one source of concepts there is normally no attempt to model human designers. Rather the results of the research presented in this volume demonstrate approaches to increasing our understanding of design as a process.

Towards Sustainable Innovation Steven Pastoors
2017-03-13

With sustainability having gained a lot of

momentum over the last years and companies implementing strategies to create corporate sustainability, there are lots of opportunities for innovation. Thus, the two concepts of sustainability and innovation should not be considered separately - they are closely interlinked with one another. The main goal of sustainable innovation is to develop new products and technologies that have a positive impact on the company's triple-bottom-line. To meet this aim, they have to be ecologically and economically beneficial as well as socially balanced. In order to help companies to improve their sustainable innovation process practically, this book is structured into five possible phases of a sustainable innovation process: Awareness of a sustainability problem, Identification & Definition of the problem, Ideation & Evaluation of the solutions, Testing & Enrichment of the solutions, Implementation of the solutions & Green Marketing.

Numerical Modelling of Wave Energy

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Converters - Matt Folley 2016-06-14
Numerical Modelling of Wave Energy Converters: State-of-the Art Techniques for Single WEC and Converter Arrays presents all the information and techniques required for the numerical modelling of a wave energy converter together with a comparative review of the different available techniques. The authors provide clear details on the subject and guidance on its use for WEC design, covering topics such as boundary element methods, frequency domain models, spectral domain models, time domain models, non linear potential flow models, CFD models, semi analytical models, phase resolving wave propagation models, phase averaging wave propagation models, parametric design and control optimization, mean annual energy yield, hydrodynamic loads assessment, and environmental impact assessment. Each chapter starts by defining the fundamental principles underlying the numerical modelling technique and finishes with a discussion of the

technique's limitations and a summary of the main points in the chapter. The contents of the chapters are not limited to a description of the mathematics, but also include details and discussion of the current available tools, examples available in the literature, and verification, validation, and computational requirements. In this way, the key points of each modelling technique can be identified without having to get deeply involved in the mathematical representation that is at the core of each chapter. The book is separated into four parts. The first two parts deal with modelling single wave energy converters; the third part considers the modelling of arrays; and the final part looks at the application of the different modelling techniques to the four most common uses of numerical models. It is ideal for graduate engineers and scientists interested in numerical modelling of wave energy converters, and decision-makers who must review different modelling techniques and assess their suitability

and output. Consolidates in one volume information and techniques for the numerical modelling of wave energy converters and converter arrays, which has, up until now, been spread around multiple academic journals and conference proceedings making it difficult to access Presents a comparative review of the different numerical modelling techniques applied to wave energy converters, discussing their limitations, current available tools, examples, and verification, validation, and computational requirements Includes practical examples and simulations available for download at the book's companion website Identifies key points of each modelling technique without getting deeply involved in the mathematical representation

Design Creativity 2010 - Toshiharu Taura
2010-11-04

What is 'design creativity'? It is impossible to answer this question without considering why human beings can - and do - 'design'. Design

creativity is instrumental in not only addressing social problems faced across the world, but also evoking an innate appreciation for beauty and a sense of personal contentment. Design Creativity 2010 comprises advanced research findings on design creativity and perspectives on future directions of design creativity research. The papers included were presented and discussed at the first ICDC (International Conference on Design Creativity), which was held at Kobe, Japan, in 2010. Design Creativity 2010 encourages readers to enhance and expand their activities in the field of design creativity.

Biologically Inspired Design - Ashok K Goel
2013-07-16

From simple cases such as hook and latch attachments found in Velcro to articulated-wing flying vehicles, biology often has been used to inspire many creative design ideas. The scientific challenge now is to transform the paradigm into a repeatable and scalable methodology. Biologically Inspired Design

explores computational techniques and tools that can help integrate the method into design practice. With an inspiring foreword from Janine Benyus, *Biologically Inspired Design* contains a dozen chapters written by some of the leading scholars in the transdisciplinary field of bioinspired design, such as Frank Fish, Julian Vincent and Jeannette Yen from biology, and Amaresk Chakrabarti, Satyandra Gupta and Li Shu from engineering. Based in part on discussions at two workshops sponsored by the United States National Science Foundation, this volume introduces and develops several methods and tools for bioinspired design including: Information-processing theories, Natural language techniques, Knowledge-based tools, and Functional approaches and Pedagogical techniques. By exploring these fundamental theories, techniques and tools for supporting biologically inspired design, this volume provides a comprehensive resource for design practitioners wishing to explore the paradigm,

an invaluable guide to design educators interested in teaching the method, and a preliminary reading for design researchers wanting to investigate bioinspired design.
Design with Intent - Dan Lockton 2010

inGenius - Tina Seelig 2012-04-17
Imaginative. Innovative. Ingenious. These words describe the visionaries we all respect and admire. And they can describe you, too. Contrary to common belief, creativity is not a gift some of us are born with. It is a skill that all of us can learn. International bestselling author and award-winning Stanford University educator Tina Seelig has worked with some of the business world's best and brightest, who are now among the decision-makers at companies such as Google, Genentech, IBM, and Cisco. In *inGenius* she expertly demystifies creativity, offering a set of tools and guidelines that anyone can use. A fantastic resource for everyone wanting to achieve their ambitions, and for

readers of Jason Fried's Rework, and Seth Godin's Poke the Box.

Engineering Design Principles - Ken Hurst
1999-05-28

Good design is the key to the manufacture of successful commercial products. It encompasses creativity, technical ability, communication at all levels, good management and the ability to mould these attributes together. There are no single answers to producing a well designed product. There are however tried and tested principles which, if followed, increase the likely success of any final product. Engineering Design Principles introduces these principles to engineering students and professional engineers. Drawing on historical and familiar examples from the present, the book provides a stimulating guide to the principles of good engineering design. The comprehensive coverage of this text makes it invaluable to all undergraduates requiring a firm foundation in the subject. Introduction to principles of good

engineering design like: problem identification, creativity, concept selection, modelling, design management and information gathering Rich selection of historical and familiar present examples

Modern Extraction Techniques Charlotta Turner 2006

During the last ten years, several new extraction techniques have been developed that are faster, more automated and use less organic solvents compared to classical solvent extraction techniques. Furthermore, there is a clear trend going towards the use of (and research on) environmentally sustainable methods, which is encouraging for the future. Supercritical fluid extraction (SFE) and pressurized liquid extraction (PLE) are two of the most useful techniques for extraction of non-polar and medium polar solutes from solid and semi-solid samples. These techniques commonly use pressurized carbon dioxide or hot liquids such as water as extraction solvents, respectively. For

aqueous samples, stir-bar sorptive extraction (SBSE) has recently been developed. These are some of the techniques that will be described in the proposed symposium series book. Focus will be on the extraction of various compounds from food and agricultural samples in either an analytical or a process-scale point-of-view. Several of the book chapters will compare the different techniques, and describe their

advantages and disadvantages. Applications discussed in this book include SFE of biopolymers from distillers dried grains, SFE of lipids from oilseeds, PLE of functional ingredients from plants and herbs, tandem SFE/PLE of acrylamide from potato chips, SFE and PLE of cholesterol and fat from hamster liver, and steam distillation-extraction (SDE) and SBSE of flavors from shitake mushrooms.