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KEY=SOLUTIONS - WARE EDDIE

Agile Service Development

Combining Adaptive Methods and Flexible Solutions

Springer Science & Business Media *Economies around the globe have evolved into being largely service-oriented economies. Consumers no longer just want a printer or a car, they rather ask for a printing service or a mobility service. In addition, service-oriented organizations increasingly exploit new devices, technologies and infrastructures. Agility is the ability to deal with such changing requirements and environments. Agile ways of working embrace change as a positive force and harness it to the organization's competitive advantage. The approach described in this book focuses on the notion of a service as a piece of functionality that offers value to its customers. Instead of solely looking at agility in the context of system or software development, agility is approached in a broader context. The authors illustrate three kinds of agility that can be found in an agile enterprise: business, process and system agility. These three types of agility reinforce each other and establish the foundation for the agile enterprise. Architecture, patterns, models, and all of the best practices in system development contribute to agile service development and building agile applications. This book addresses two audiences. On the one hand, it aims at agile and architecture practitioners who are looking for more agile ways of working in designing and building business services or who are interested in extending and improving their agile methods by using models and model-based architectures. On the other hand, it addresses students of (enterprise) architecture and software development or service science courses, both in computer science and in business administration.*

Complex Adaptive Systems of Systems (CASoS) Engineering

Mapping Aspirations to Problem Solutions

Control Engineering Solutions

A Practical Approach

IET *This book collects together in one volume a number of suggested control engineering solutions which are intended to be representative of solutions applicable to a broad class of control problems. It is neither a control theory book nor a handbook of laboratory experiments, but it does include both the basic theory of control and associated practical laboratory set-ups to illustrate the solutions proposed.*

Adaptive Web Services for Modular and Reusable Software Development: Tactics and Solutions

Tactics and Solutions

IGI Global *Web services provide systems with great flexibility and easier maintenance which result in better ways to communicate and distribute applications. There are good procedures in place for the design, development, and management of Web services; however, there are areas in which Web service adaptation is required. To preserve the loosely coupled approach of Web services, service adaptations should be implemented appropriately. Adaptive Web Services for Modular and Reusable Software Development: Tactics and Solutions includes current research on the area of Web service adaptation while embarking upon the different aspects related to Web services. This collection provides an overview of existing solutions for service adaption in different development scopes as well as covers a wide variety of challenges which emerge. It aims to keep industry professionals as well as academic researchers up to date with the latest research results.*

Evolutionary and Adaptive Computing in Engineering Design

With 98 Figures

Springer Science & Business Media *Following an introduction to the various techniques and examples of their routine application, this potential is explored through the introduction of various strategies that support searches across a far broader set of possible design solutions within time and budget constraints. Generic problem areas investigated include: - design decomposition; - whole-system design; - multi-objective and constraint satisfaction; - human-computer interaction; - computational expense. Appropriate strategies that help overcome problems often encountered when integrating computer-based techniques with complex, real-world design environments are described. A straightforward approach coupled with examples supports a rapid understanding of the manner in which such strategies can best be designed to handle the complexities of a particular problem.*

Adaptive Structures

Engineering Applications

John Wiley & Sons *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.*

An Introduction to Self-adaptive Systems

A Contemporary Software Engineering Perspective

John Wiley & Sons *A concise and practical introduction to the foundations and engineering principles of self-adaptation Though it has recently gained significant momentum, the topic of self-adaptation remains largely under-addressed in academic and technical literature. This book changes that. Using a systematic and holistic approach, An Introduction to Self-adaptive Systems: A Contemporary Software Engineering Perspective provides readers with an accessible set of basic principles, engineering foundations, and applications of self-adaptation in software-intensive systems. It places self-adaptation in the context of techniques like uncertainty management, feedback control, online reasoning, and machine learning while acknowledging the growing consensus in the software engineering community that self-adaptation will be a crucial enabling feature in tackling the challenges of new, emerging, and future systems. The author combines cutting-edge technical research with basic principles and real-world insights to create a practical and strategically effective guide to self-adaptation. He includes features such as: An analysis of the foundational engineering principles and applications of self-adaptation in different domains, including the Internet-of-Things, cloud computing, and cyber-physical systems End-of-chapter exercises at four different levels of complexity and difficulty An accompanying author-hosted website with slides, selected exercises and solutions, models, and code Perfect for researchers, students, teachers, industry leaders, and practitioners in fields that directly or peripherally involve software engineering, as well as those in academia involved in a class on self-adaptivity, this book belongs on the shelves of anyone with an interest in the future of software and its engineering.*

Engineering Adaptive Software Systems

Communications of NII Shonan Meetings

Springer *This book discusses the problems and challenges in the interdisciplinary research field of self-adaptive software systems. Modern society is increasingly filled with software-intensive systems, which are required to operate in more and more dynamic and uncertain environments. These systems must monitor and control their environment while adapting to meet the requirements at runtime. This book provides promising approaches and research methods in software engineering, system engineering, and related fields to address the challenges in engineering the next-generation adaptive software systems. The contents of the book range from design and engineering principles (Chap. 1) to control–theoretic solutions (Chap. 2) and bidirectional transformations (Chap. 3), which can be seen as promising ways to implement the functional requirements of self-adaptive systems. Important quality requirements are also dealt with by these approaches: parallel adaptation for performance (Chap. 4), self-adaptive authorization infrastructure for security (Chap. 5), and self-adaptive risk assessment for self-protection (Chap. 6). Finally, Chap. 7 provides a concrete self-adaptive robotics operating system as a testbed for self-adaptive systems. The book grew out of a series of the Shonan Meetings on this ambitious topic held in 2012, 2013, and 2015. The authors were active participants in the meetings and have brought in interesting points of view. After several years of reflection, they now have been able to crystalize the ideas contained herein and collaboratively pave the way for solving some aspects of the research problems. As a result, the book stands as a milestone to initiate further progress in this promising interdisciplinary research field.*

Adaptive Signal Processing

Next Generation Solutions

John Wiley & Sons *Leading experts present the latest research results in adaptive signal processing Recent developments in signal processing have made it clear that significant performance gains can be achieved beyond those achievable using standard adaptive filtering approaches. Adaptive Signal Processing presents the next generation of algorithms that will produce these desired results, with an emphasis on important applications and theoretical advancements. This highly unique resource brings together leading authorities in the field writing on the key topics of significance, each at the cutting edge of its own area of specialty. It begins by addressing the problem of optimization in the complex domain, fully developing a framework that enables taking full advantage of the power of complex-valued processing. Then, the challenges of multichannel processing of complex-valued signals are explored. This comprehensive volume goes on to cover Turbo processing, tracking in the subspace domain, nonlinear sequential state estimation, and speech-bandwidth extension. Examines the seven most important topics in adaptive filtering that will define the next-generation adaptive filtering solutions Introduces the powerful adaptive signal processing methods developed within the last ten years to account for the characteristics of real-life data: non-Gaussianity, non-circularity, non-stationarity, and non-linearity Features self-contained chapters, numerous examples to clarify concepts, and end-of-chapter problems to reinforce understanding of the material Contains contributions from acknowledged leaders in the field Adaptive Signal Processing is an invaluable tool for graduate students, researchers, and practitioners working in the areas of signal processing, communications, controls, radar, sonar, and biomedical engineering.*

A Development and Extension of the Engineering Solutions for the Miles and Snow's Adaptive Cycle

A Thesis Submitted in Partial Fulfillment of the Requirements of the Nottingham Trent University and Southampton Solent University for the Degree of Doctor of Philosophy

Engineering Data-Driven Adaptive Trust-based e-Assessment Systems

Challenges and Infrastructure Solutions

Springer Nature *This book shares original innovations, research, and lessons learned regarding teaching and technological perspectives on trust-based learning systems. Both perspectives are crucial to enhancing the e-Assessment process. In the course of the book, diverse areas of the computer sciences (machine learning, biometric recognition, cloud computing, and learning analytics, amongst others) are addressed. In addition, current trends, privacy, ethical issues, technological solutions, and adaptive educational models are described to provide readers with a global view on the state of the art, the latest challenges, and potential solutions in e-Assessment. As such, the book offers a valuable reference guide for industry, educational institutions, researchers, developers, and practitioners seeking to promote e-Assessment processes.*

Software Engineering for Self-Adaptive Systems

Springer Science & Business Media *The carefully reviewed papers in this state-of-the-art survey describe a wide range of approaches coming from different strands of software engineering, and look forward to future challenges facing this ever-resurgent and exacting field of research.*

Adaptive Computing in Design and Manufacture V

Springer Science & Business Media *The Adaptive Computing in Design and Manufacture Conference series is now in its tenth year and has become a well-established, application-oriented meeting recognised by several UK Engineering Institutions and the International Society of Genetic and Evolutionary Computing. The main theme of the conference again relates to the integration of evolutionary and adaptive computing technologies with design and manufacturing processes whilst also taking into account complementary advanced computing technologies. Evolutionary and adaptive computing techniques continue to increase their penetration of industrial and commercial practice as their powerful search, exploration and optimisation capabilities become ever more apparent. The last two years have seen a very significant increase in the development of commercial software tools utilising adaptive computing technologies and the emergence of related commercial research and consultancy organisations supporting the introduction of best practice in terms of industrial utilisation. Adaptive Computing in Design and Manufacture V is comprised of selected papers that cover a diverse set of industrial application areas including: engineering design and design environments, manufacturing process design, scheduling and control, electronic circuit design, fault detection. Various aspects of search and optimisation such as multi-objective and constrained optimisation are also investigated in the context of integration with industrial processes. In addition to evolutionary computing techniques, both neural-net and agent-based technologies play a role in a number of contributions. This collection of papers will be of particular interest to both industrial researchers and practitioners in addition to the academic research communities of engineering, operational research and computer science.*

Evolutionary and Adaptive Computing in Engineering Design

Springer Science & Business Media *Following an introduction to the various techniques and examples of their routine application, this potential is explored through the introduction of various strategies that support searches across a far broader set of possible design solutions within time and budget constraints. Generic problem areas investigated include: - design decomposition; - whole-system design; - multi-objective and constraint satisfaction; - human-computer interaction; - computational expense. Appropriate strategies that help overcome problems often encountered when integrating computer-based techniques with complex, real-world design environments are described. A straightforward approach coupled with examples supports a rapid understanding of the manner in which such strategies can best be designed to handle the complexities of a particular problem.*

Adaptive Multilevel Solution of Nonlinear Parabolic PDE Systems

Theory, Algorithm, and Applications

Springer Science & Business Media *Nowadays there is an increasing emphasis on all aspects of adaptively gener ating a grid that evolves with the solution of a PDE. Another challenge is to develop efficient higher-order one-step integration methods which can handle very stiff equations and which allow us to accommodate a spatial grid in each time step without any specific difficulties. In this monograph a combination of both error-controlled grid refinement and one-step methods of Rosenbrock-type is presented. It is my intention to impart the beauty and complexity found in the theoretical investigation of the adaptive algorithm proposed here, in its realization and in solving non-trivial complex problems. I hope that this method will find many more interesting applications. Berlin-Dahlem, May 2000 Jens Lang Acknowledgements I have looked forward to writing this section since it is a pleasure for me to thank all friends who made this work possible and provided valuable input. I would like to express my gratitude to Peter Deuflhard for giving me the oppor tunity to work in the field of Scientific Computing. I have benefited immensly from his help to get the right perspectives, and from his continuous encourage ment and support over several years. He certainly will forgive me the use of Rosenbrock methods rather than extrapolation methods to integrate in time.*

Model-Based Design of Adaptive Embedded Systems

Springer Science & Business Media *This book describes model-based development of adaptive embedded systems, which enable improved functionality using the same resources. The techniques presented facilitate design from a higher level of abstraction, focusing on the problem domain rather than on the solution domain, thereby increasing development efficiency. Models are used to capture system specifications and to implement (manually or automatically) system functionality. The authors demonstrate the real impact of adaptivity on engineering of embedded systems by providing several industrial examples of the models used in the development of adaptive embedded systems.*

Adaptive Filters

John Wiley & Sons *Adaptive filtering is a topic of immense practical and theoretical value, having applications in areas ranging from digital and wireless communications to biomedical systems. This book enables readers to gain a gradual and solid introduction to the subject, its applications to a variety of topical problems, existing limitations, and extensions of current theories. The book consists of eleven parts?each part containing a series of focused lectures and ending with bibliographic comments, problems, and computer projects with MATLAB solutions.*

Stable Adaptive Systems

Courier Corporation *This graduate-level text offers a thorough understanding of the global stability properties essential to designing adaptive systems. Its self-contained, unified presentation includes detailed case studies and numerous problems. 1989 edition.*

Adaptive Control Design and Analysis

John Wiley & Sons *A systematic and unified presentation of the fundamentals of adaptive control theory in both continuous time and discrete time Today, adaptive control theory has grown to be a rigorous and mature discipline. As the advantages of adaptive systems for developing advanced applications grow apparent, adaptive control is becoming more popular in many fields of engineering and science. Using a simple, balanced, and harmonious style, this book provides a convenient introduction to the subject and improves one's understanding of adaptive control theory. Adaptive Control Design and Analysis features: Introduction to systems and control Stability, operator norms, and signal convergence Adaptive parameter estimation State feedback adaptive control designs Parametrization of state observers for adaptive control Unified continuous and discrete-time adaptive control L1+a robustness theory for adaptive systems Direct and indirect adaptive control designs Benchmark comparison study of adaptive control designs Multivariate adaptive control Nonlinear adaptive control Adaptive compensation of actuator nonlinearities End-of-chapter discussion, problems, and advanced topics As either a textbook or reference, this self-contained tutorial of adaptive control design and analysis is ideal for practicing engineers, researchers, and graduate students alike.*

Robust Adaptive Control

Courier Corporation *Presented in a tutorial style, this comprehensive treatment unifies, simplifies, and explains most of the techniques for designing and analyzing adaptive control systems. Numerous examples clarify procedures and methods. 1995 edition.*

Software Engineering for Self-Adaptive Systems

International Seminar Dagstuhl Castle, Germany, October 24-29, 2010 Revised Selected and Invited Papers

Springer *Although the self-adaptability of systems has been studied in a wide range of disciplines, from biology to robotics, only recently has the software engineering community recognized its key role in enabling the development of self-adaptive systems that are able to adapt to internal faults, changing requirements, and evolving environments. The 15 carefully reviewed papers included in this state-of-the-art survey were presented at the International Seminar on "Software Engineering for Self-Adaptive Systems", held in Dagstuhl Castle, Germany, in October 2010. Continuing the course of the first book of the series on "Software Engineering for Self-Adaptive Systems" the collection of papers in this second volume comprises a research roadmap accompanied by four elaborating working group papers. Next there are two parts - with three papers each - entitled "Requirements and Policies" and "Design Issues"; part four of the book contains four papers covering a wide range of "Applications".*

An Engineering Solution to Pitch Perception Based on an Adaptive Autocorrelation Model

Quasilinearization and Invariant Imbedding

With Applications to Chemical Engineering and Adaptive Control

Elsevier *Mathematics in Science and Engineering, Volume 41: Quasilinearization and Invariant Imbedding presents a study on the use of two concepts for obtaining numerical solutions of boundary-value problems—quasilinearization and invariant imbedding. This book emphasizes that the invariant imbedding approach reformulates the original boundary-value problem into an initial value problem by introducing new variables or parameters, while the quasilinearization technique represents an iterative approach combined with linear approximations. This volume focuses on analytical aspects that are concerned with actual convergence rates and computational requirements, considering various efficient algorithms that are suited for various types of boundary-value problems. This publication is a good reference for chemical and control engineers and scientists interested in obtaining numerical solutions of boundary-value problems in their particular fields.*

Stabilization and Regulation of Nonlinear Systems

A Robust and Adaptive Approach

Springer *The core of this textbook is a systematic and self-contained treatment of the nonlinear stabilization and output regulation problems. Its coverage embraces both fundamental concepts and advanced research outcomes and includes many numerical and practical examples. Several classes of important uncertain nonlinear systems are discussed. The state-of-the art solution presented uses robust and adaptive control design ideas in an integrated approach which demonstrates connections between global stabilization and global output regulation allowing both to be treated as stabilization problems. Stabilization and Regulation of Nonlinear Systems takes advantage of rich new results to give students up-to-date instruction in the central design problems of nonlinear control, problems which are a driving force behind the furtherance of modern control theory and its application. The diversity of systems in which stabilization and output regulation become significant concerns in the mathematical formulation of practical control solutions—whether in disturbance rejection in flying vehicles or synchronization of Lorenz systems with harmonic systems—makes the text relevant to readers from a wide variety of backgrounds. Many exercises are provided to facilitate study and solutions are freely available to instructors via a download from springerextras.com. Striking a balance between rigorous mathematical treatment and engineering practicality, Stabilization and Regulation of Nonlinear Systems is an ideal text for graduate students from many engineering and applied-mathematical disciplines seeking a contemporary course in nonlinear control. Practitioners and academic theorists will also find this book a useful reference on recent thinking in this field.*

Adaptive Control Systems

Elsevier *Adaptive control is no longer just an important theoretical field of study, but is also providing solutions to real-world problems. Adaptive techniques will transform the world of control. The leading world practitioners of adaptive control have contributed to this handbook which is the most important work yet in this field. Not only are techniques described in theory, but detailed control algorithms are given, making this a practical cookbook of adaptive control for both control professionals and practising engineers. The book presents the most advanced techniques and algorithms of adaptive control. These include various robust techniques, performance enhancement techniques, techniques with less a-priori knowledge, nonlinear adaptive control techniques and intelligent adaptive techniques. Each technique described has been developed to provide a practical solution to a real-life problem. This volume will therefore not only advance the field of adaptive control as an area of study, but will also show how the potential of this technology can be realised and offer significant benefits. Practical cookbook of adaptive control Contains important research*

Design Solutions for Adaptive Hypermedia Listening Software

"This book of contributed chapters aims to enable companies, institutions, teachers and researchers to design and create technically and pedagogically sound and efficient interactive adaptive hypermedia listening environments for language learners in any language in general and in English in specific"--

Adaptive, tolerant and efficient composite structures

Springer Science & Business Media *Composite structures are most efficient in performance and production cost when combined with smart materials making them adaptable to changing operational conditions. The specific production processes of composites offer the possibility to integrate more functions thus making the structure more valuable. Active functions can be realized by smart materials, e.g. morphing, active vibration control, active structure acoustic control or structure health monitoring. The foundation is a sound understanding of materials, design methods, design principles, production technologies and adaptronics. Along the complete process chain this disciplines together deliver advanced lightweight solutions for applications ranging from mechanical engineering to vehicles, airframe and finally space structures. This book provides the scientific foundations as well as inspiring new ideas for engineers working in the field of composite lightweight structures.*

Adaptive Signal Processing

Next Generation Solutions

<u>Wiley-IEEE Press</u> *Leading experts present the latest research results in adaptive signal processing Recent developments in signal processing have made it clear that significant performance gains can be achieved beyond those achievable using standard adaptive filtering approaches. Adaptive Signal Processing presents the next generation of algorithms that will produce these desired results, with an emphasis on important applications and theoretical advancements. This highly unique resource brings together leading authorities in the field writing on the key topics of significance, each at the cutting edge of its own area of specialty. It begins by addressing the problem of optimization in the complex domain, fully developing a framework that enables taking full advantage of the power of complex-valued processing. Then, the challenges of multichannel processing of complex-valued signals are explored. This comprehensive volume goes on to cover Turbo processing, tracking in the subspace domain, nonlinear sequential state estimation, and speech-bandwidth extension. Examines the seven most important topics in adaptive filtering that will define the next-generation adaptive filtering solutions Introduces the powerful adaptive signal processing methods developed within the last ten years to account for the characteristics of real-life data: non-Gaussianity, non-circularity, non-stationarity, and non-linearity Features self-contained chapters, numerous examples to clarify concepts, and end-of-chapter problems to reinforce understanding of the material Contains contributions from acknowledged leaders in the field Adaptive Signal Processing is an invaluable tool for graduate students, researchers, and practitioners working in the areas of signal processing, communications, controls, radar, sonar, and biomedical engineering.*

Adaptive Supply Chain Management

<u>Springer Science & Business Media</u> *Adaptive Supply Chain Management develops new viewpoints on the SCM goal paradigm, problem semantics, and decision-making support. Drawing upon years of research and practical experience, and using numerous examples, the authors unite conceptual considerations of supply chains with a constructive level of engineering and solutions to real-world problems. Adaptive Supply Chain Management provides advanced insights into dynamics, complexity, and uncertainty in supply chains from the perspectives of systems analysis, control theory, and operations research. It also considers supply chain adaptability, stability, and crisis-resistance. Providing readers with a comprehensive view of advanced SCM concepts, constructive mathematical techniques and models, Adaptive Supply Chain Management is an invaluable text for practitioners and researchers who specialize in SCM and operations.*

Engineering Analysis with SOLIDWORKS Simulation 2017

<u>SDC Publications</u> *Engineering Analysis with SOLIDWORKS Simulation 2017 goes beyond the standard software manual. Its unique approach concurrently introduces you to the SOLIDWORKS Simulation 2017 software and the fundamentals of Finite Element Analysis (FEA) through hands-on exercises. A number of projects are presented using commonly used parts to illustrate the analysis features of SOLIDWORKS Simulation. Each chapter is designed to build on the skills, experiences and understanding gained from the previous chapters.*

Adaptive Mesh Refinement in Solution of Two-phase Flow Problems

Adaptive Analysis of Damage and Fracture in Rock with Multiphysical Fields Coupling

<u>Springer Nature</u> *This book mainly focuses on the adaptive analysis of damage and fracture in rock, taking into account multiphysical fields coupling (thermal, hydro, mechanical, and chemical fields). This type of coupling is a crucial aspect in practical engineering for e.g. coal mining, oil and gas exploration, and civil engineering. However, understanding the influencing mechanisms and preventing the disasters resulting from damage and fracture evolution in rocks require high-precision and reliable solutions. This book proposes adaptive numerical algorithms and simulation analysis methods that offer significant advantages in terms of accuracy and reliability. It helps readers understand these innovative methods quickly and easily. The content consists of: (1) a finite element algorithm for modeling the continuum damage evolution in rocks, (2) adaptive finite element analysis for continuum damage evolution and determining the wellbore stability of transversely isotropic rock, (3) an adaptive finite element algorithm for damage detection in non-uniform Euler–Bernoulli beams with multiple cracks, using natural frequencies, (4) adaptive finite element–discrete element analysis for determining multistage hydrofracturing in naturally fractured reservoirs, (5) adaptive finite element–discrete element analysis for multistage supercritical CO_2 fracturing and microseismic modeling, and (6) an adaptive finite element–discrete element–finite volume algorithm for 3D multiscale propagation of hydraulic fracture networks, taking into account hydro-mechanical coupling. Given its scope, the book offers a valuable reference guide for researchers, postgraduates and undergraduates majoring in engineering mechanics, mining engineering, geotechnical engineering, and geological engineering.*

Adaptive Structures

Engineering Applications

<u>John Wiley & Sons</u> *The major themes for this book are intelligent materials; sensing and control of adaptive systems; applications to aerospace engineering. Every chapter is written by a global leader in their field and provides insights into the future directions of this field, setting the agenda for future research in adaptive structures.*

Engineering Analysis with SolidWorks Simulation 2010

<u>SDC Publications</u> *Presents a guide to the features of SolidWorks Simulation software and the fundamentals of Finite Element Analysis along with providing a variety of hands-on exercises.*

ADEX Optimized Adaptive Controllers and Systems

From Research to Industrial Practice

<u>Springer</u> *This book is a simple and didactic account of the developments and practical applications of predictive, adaptive predictive, and optimized adaptive control from a perspective of stability, including the latest methodology of adaptive predictive expert (ADEX) control. ADEX Optimized Adaptive Control Systems is divided into six parts, with exercises and real-time simulations provided for the reader as appropriate. The text begins with the conceptual and intuitive knowledge of the technology and derives the stability conditions to be verified by the driver block and the adaptive mechanism of the optimized adaptive controller to guaranty the desired control performance. The second and third parts present strategic considerations of predictive control and related adaptive systems necessary for the proper design of driver block and adaptive mechanism and thence their technical realization. The authors then proceed to detail the stability theory that supports predictive, adaptive predictive and optimized adaptive control methodologies. Benchmark applications of these methodologies (distillation column and pulp-factory bleaching plant) are treated next with a focus on practical*

implementation issues. The final part of the book describes ADEX platforms and illustrates their use in the design and implementation of optimized adaptive control systems to three different challenging-to-control industrial processes: waste-water treatment; sulfur recovery; and temperature control of superheated steam in coal-fired power generation. The presentation is completed by a number of appendices containing technical background associated with the main text including a manual for the ADEX COP platform developed by the first author to exploit the capabilities of adaptive predictive control in real plants. ADEX Optimized Adaptive Control Systems provides practicing process control engineers with a multivariable optimal control solution which is adaptive and resistant to perturbation and the effects of noise. Its pedagogical features also facilitate its use as a teaching tool for formal university and Internet-based open-education-type graduate courses in practical optimal adaptive control and for self-study.

Adaptive and Robust Active Vibration Control

Methodology and Tests

Springer *This book approaches the design of active vibration control systems from the perspective of today's ideas of computer control. It formulates the various design problems encountered in the active management of vibration as control problems and searches for the most appropriate tools to solve them. The experimental validation of the solutions proposed on relevant tests benches is also addressed. To promote the widespread acceptance of these techniques, the presentation eliminates unnecessary theoretical developments (which can be found elsewhere) and focuses on algorithms and their use. The solutions proposed cannot be fully understood and creatively exploited without a clear understanding of the basic concepts and methods, so these are considered in depth. The focus is on enhancing motivations, algorithm presentation and experimental evaluation. MATLAB®routines, Simulink® diagrams and bench-test data are available for download and encourage easy assimilation of the experimental and exemplary material. Three major problems are addressed in the book: active damping to improve the performance of passive absorbers; adaptive feedback attenuation of single and multiple tonal vibrations; and feedforward and feedback attenuation of broad band vibrations. Adaptive and Robust Active Vibration Control will interest practising engineers and help them to acquire new concepts and techniques with good practical validation. It can be used as the basis for a course for graduate students in mechanical, mechatronics, industrial electronics, aerospace and naval engineering. Readers working in active noise control will also discover techniques with a high degree of cross-over potential for use in their field.*

Do Smart Adaptive Systems Exist?

Best Practice for Selection and Combination of Intelligent Methods

Springer *Do Smart Adaptive Systems Exist? is intended as a reference and a guide summarising and focusing on best practices when using intelligent techniques and building systems requiring a degree of adaptation and intelligence. It is therefore not intended as a collection of the most recent research results, but as a practical guide for experts from other areas and industrial users interested in building solutions to their problems using intelligent techniques. One of the main issues covered is an attempt to answer the question of how to select and/or combine suitable intelligent techniques from a large pool of potential solutions. Another attractive feature of the book is that it brings together experts from neural network, fuzzy, machine learning, evolutionary and hybrid systems communities who will provide their views on how these different intelligent technologies have contributed and will contribute to creation of smart adaptive systems of the future.*

Adaptive Information

Improving Business Through Semantic Interoperability, Grid Computing, and Enterprise Integration

John Wiley & Sons *New Paradigm for considering application integration and B2Bproblems Heightens the importance of conveying meaning betweensystems Addresses movement in the EAI space toward more data handlingcapabilities Offers a solution for the multitude of managers disconnectedwith the latest technologies Leverages the technical advances made in complex dataintegration over 15 years Shifts the focus from technology solutions to informationsolutions Relies heavily on the use of practical examples, tips,definitions, and soapbox excerpts throughout the main body oftext*

Phoenix

Complex Adaptive System of Systems (CASoS) Engineering Version 1.0

Complex Adaptive Systems of Systems, or CASoS, are vastly complex ecological, sociological, economic and/or technical systems which we must understand to design a secure future for the nation and the world. Perturbations/disruptions in CASoS have the potential for far-reaching effects due to pervasive interdependencies and attendant vulnerabilities to cascades in associated systems. Phoenix was initiated to address this high-impact problem space as engineers. Our overarching goals are maximizing security, maximizing health, and minimizing risk. We design interventions, or problem solutions, that influence CASoS to achieve specific aspirations. Through application to real-world problems, Phoenix is evolving the principles and discipline of CASoS Engineering while growing a community of practice and the CASoS engineers to populate it. Both grounded in reality and working to extend our understanding and control of that reality, Phoenix is at the same time a solution within a CASoS and a CASoS itself.

Complex Adaptive System of Systems (CASoS) Engineering Applications. Version 1.0

Complex Adaptive Systems of Systems, or CASoS, are vastly complex eco-socio-economic-technical systems which we must understand to design a secure future for the nation and the world. Perturbations/disruptions in CASoS have the potential for far-reaching effects due to highly-saturated interdependencies and allied vulnerabilities to cascades in associated systems. The Phoenix initiative approaches this high-impact problem space as engineers, devising interventions (problem solutions) that influence CASoS to achieve specific aspirations. CASoS embody the world's biggest problems and greatest opportunities: applications to real world problems are the driving force of our effort. We are developing engineering theory and practice together to create a discipline that is grounded in reality, extends our understanding of how CASoS behave, and allows us to better control those behaviors. Through application to real-world problems, Phoenix is evolving CASoS Engineering principles while growing a community of practice and the CASoS engineers to populate it.