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MJLYR2 - HEATH HAMILTON

Fuzzy Information & Engineering and Operations Research & Management is the monograph from submissions by the 6th International Conference on Fuzzy Information and Engineering (ICFIE2012, Iran) and by the 6th academic conference from Fuzzy Information Engineering Branch of Operation Research Society of China (FIEBORSC2012, Shenzhen, China). It is published by Advances in Intelligent and Soft Computing (AISC). We have received more than 300 submissions. Each paper of it has undergone a rigorous review process. Only high-quality papers are included in it containing papers

as follows: I Programming and Optimization. II Lattice and Measures. III Algebras and Equation. IV Forecasting, Clustering and Recognition. V Systems and Algorithm. VI Graph and Network. VII Others.

This book constitutes the refereed proceedings of the 10th International Workshop on Security and Trust Management, STM 2014, held in Wroclaw, Poland, in September 2014, in conjunction with the 19th European Symposium Research in Computer Security, ESORICS 2014. The 11 revised full papers were carefully reviewed and selected from 29 submissions and cover topics as access control, data protection, digital rights, security and trust policies, security and trust in social

networks.

Communication protocols form the operational basis of computer networks and telecommunication systems. They are behavior conventions that describe how communication systems interact with each other, defining the temporal order of the interactions and the formats of the data units exchanged - essentially they determine the efficiency and reliability of computer networks. Protocol Engineering is an important discipline covering the design, validation, and implementation of communication protocols. Part I of this book is devoted to the fundamentals of communication protocols, describing their working principles and implicitly also those

of computer networks. The author introduces the concepts of service, protocol, layer, and layered architecture, and introduces the main elements required in the description of protocols using a model language. He then presents the most important protocol functions. Part II deals with the description of communication protocols, offering an overview of the various formal methods, the essence of Protocol Engineering. The author introduces the fundamental description methods, such as finite state machines, Petri nets, process calculi, and temporal logics, that are in part used as semantic models for formal description techniques. He then introduces one representative technique for each of the main description approaches, among others SDL and LOTOS, and surveys the use of UML for describing protocols. Part III covers the protocol life cycle and the most important development stages, presenting the reader with approaches for systematic protocol design, with various verification methods, with the main implementation techniques, and with strategies for their testing, in particular with conformance and interoperability

tests, and the test description language TTCN. The author uses the simple data transfer example protocol XDT (eXample Data Transfer) throughout the book as a reference protocol to exemplify the various description techniques and to demonstrate important validation and implementation approaches. The book is an introduction to communication protocols and their development for undergraduate and graduate students of computer science and communication technology, and it is also a suitable reference for engineers and programmers. Most chapters contain exercises, and the author's accompanying website provides further online material including a complete formal description of the XDT protocol and an animated simulation visualizing its behavior. Ontological Engineering refers to the set of activities that concern the ontology development process, the ontology life cycle, the methods and methodologies for building ontologies, and the tool suites and languages that support them. During the last decade, increasing attention has been focused on ontologies and Ontological Engineering. Ontologies are now widely used

in Knowledge Engineering, Artificial Intelligence and Computer Science; in applications related to knowledge management, natural language processing, e-commerce, intelligent integration information, information retrieval, integration of databases, informatics, and education; and in new emerging fields like the Semantic Web. Primary goals of this book are to acquaint students, researchers and developers of information systems with the basic concepts and major issues of Ontological Engineering, as well as to make ontologies more understandable to those computer science engineers that integrate ontologies into their information systems. We have paid special attention to the influence that ontologies have on the Semantic Web. Pointers to the Semantic Web appear in all the chapters, but specially in the chapter on ontology languages and tools.

This book presents current progress on challenges related to Big Data management by focusing on the particular challenges associated with context-aware data-intensive applications and services. The book is a state-of-the-art reference dis-

cussing progress made, as well as prompting future directions on the theories, practices, standards and strategies that are related to the emerging computational technologies and their association with supporting the Internet of Things advanced functioning for organizational settings including both business and e-science. Apart from inter-operable and inter-cooperative aspects, the book deals with a notable opportunity namely, the current trend in which a collectively shared and generated content is emerged from Internet end-users. Specifically, the book presents advances on managing and exploiting the vast size of data generated from within the smart environment (i.e. smart cities) towards an integrated, collective intelligence approach. The book also presents methods and practices to improve large storage infrastructures in response to increasing demands of the data intensive applications. The book contains 19 self-contained chapters that were very carefully selected based on peer review by at least two expert and independent reviewers and is organized into the three sections reflecting the general themes of interest to

the IoT and Big Data communities: Section I: Foundations and Principles Section II: Advanced Models and Architectures Section III: Advanced Applications and Future Trends The book is intended for researchers interested in joining interdisciplinary and transdisciplinary works in the areas of Smart Environments, Internet of Things and various computational technologies for the purpose of an integrated collective computational intelligence approach into the Big Data era.

A tutorial in the form of a collection of previously published papers and original material that cover current research and development in data communications protocol testing--including test suite generation and practice--and present essential practical experience in harnessing theory for protocol testing. Includes a glossary of terms. Annotation copyright by Book News, Inc., Portland, OR This book constitutes the refereed proceedings of the 13th International Conference on Reliable Software Technologies, Ada-Europe 2008, held in Venice, Italy, in June 2008. The 20 revised full papers presented were carefully reviewed and se-

lected from numerous submissions. The conference proceedings published in this volume cover topics ranging from formal verification to real-time systems via concurrency, embedded systems, language technologies, model-driven engineering and applications of Petri Nets. Annotation. This book constitutes the refereed proceedings of the 12th International Conference on Information and Communications Security, ICICS 2010, held in Barcelona, Spain, in December 2010. The 31 revised full papers presented together with an invited talk were carefully reviewed and selected from 135 submissions. The papers are organized in topical sections on access control, public key cryptography and cryptanalysis, security in distributed and mobile systems, cryptanalysis, authentication, fair exchange protocols, anonymity and privacy, software security, proxy cryptosystems, and intrusion detection systems.

th The 14 International Conference on Knowledge-Based and Intelligent Information and Engineering Systems was held during September 8-10, 2010 in Cardiff, UK. The conference was organized

by the School of Engineering at Cardiff University, UK and KES International. KES2010 provided an international scientific forum for the presentation of the results of high-quality research on a broad range of intelligent systems topics. The conference attracted over 360 submissions from 42 countries and 6 continents: Argentina, Australia, Belgium, Brazil, Bulgaria, Canada, Chile, China, Croatia, Czech Republic, Denmark, Finland, France, Germany, Greece, Hong Kong ROC, Hungary, India, Iran, Ireland, Israel, Italy, Japan, Korea, Malaysia, Mexico, The Netherlands, New Zealand, Pakistan, Poland, Romania, Singapore, Slovenia, Spain, Sweden, Syria, Taiwan, Tunisia, Turkey, UK, USA and Vietnam. The conference consisted of 6 keynote talks, 11 general tracks and 29 invited sessions and workshops, on the applications and theory of intelligent systems and related areas. The distinguished keynote speakers were Christopher Bishop, UK, Nikola Sabov, New Zealand, Saeid Nahavandi, Australia, Tetsuo Sawaragi, Japan, Yuzuru Tanaka, Japan and Roger Whitaker, UK. Over 240 oral and poster presentations provided excellent opportunities for

the presentation of interesting new research results and discussion about them, leading to knowledge transfer and generation of new ideas. Extended versions of selected papers were considered for publication in the International Journal of Knowledge-Based and Intelligent Engineering Systems, Engineering Applications of Artificial Intelligence, Journal of Intelligent Manufacturing, and Neural Computing and Applications.

Research into the next generation of service architecture techniques has enabled the design, development, and implementation of dynamic, adaptive, and autonomic services to enable enterprises to efficiently align information technology with their agile business requirements and foster smart services and seamless enterprise integration. Handbook of Research on Architectural Trends in Service-Driven Computing explores, delineates, and discusses recent advances in architectural methodologies and development techniques in service-driven computing. This comprehensive publication is an inclusive reference source for organizations, researchers, students, enterprise and integration architects,

practitioners, software developers, and software engineering professionals engaged in the research, development, and integration of the next generation of computing.

This book provides comprehensive coverage of the protocols of communication systems. The book is divided into four parts. Part I covers the basic concepts of system and protocol design and specification, overviews the models and languages for informal and formal specification of protocols, and describes the specification language SDL. In the second part, the basic notions and properties of communication protocols and protocol stacks are explained, including the treatment of the logical correctness and the performance of protocols. In the third part, many methods for message transfer, on which specific communication protocols are based, are explained and formally specified in the SDL language. The fourth part provides for short descriptions of some specific protocols, mainly used in IP networks, in order to acquaint a reader with the practical use of communication methods presented in the third part of the book. The book is relevant to researchers, aca-

demics, professionals and students in communications engineering. Provides comprehensive yet granular coverage of the protocols of communication systems Allows readers the ability to understand the formal specification of communication protocols Specifies communication methods and protocols in the specification language SDL, giving readers practical tools to venture on their own

This book constitutes the refereed proceedings of the 6th International Conference on Reliable Software Technologies, Ada-Europe 2001, held in Leuven, Belgium, in May 2001. The 27 revised full papers presented together with five invited papers were carefully reviewed and selected from a large number of submissions. The papers are organized in topical sections on program analysis, distributed systems, real-time systems, language and patterns, dependable systems, APIs and components, real-time kernels, standard formats: UML and XML, and system evolution.

This handbook delivers a complete and practice-oriented overview of the fundamentals of today's telecommunications networks

and the future prospects for next generation networks (NGN). The very clear and concise text is supplemented by many colour illustrations and embedded into a functional four-colour layout.

This text is a programming tutorial on the fundamentals and features of ASN.1. It explains ASN.1 and its encoding rules in simple terms and addresses the subject at an introductory as well as at a more detailed level.

Traditional computing concepts are maturing into a new generation of cloud computing systems with wide-spread global applications. However, even as these systems continue to expand, they are accompanied by overall performance degradation and wasted resources. Emerging Research in Cloud Distributed Computing Systems covers the latest innovations in resource management, control and monitoring applications, and security of cloud technology. Compiling and analyzing current trends, technological concepts, and future directions of computing systems, this publication is a timely resource for practicing engineers, technologists, researchers, and advanced students interested in the domain of cloud computing.

System administration is about the design, running and maintenance of human-computer systems. Examples of human-computer systems include business enterprises, service institutions and any extensive machinery that is operated by, or interacts with human beings. System administration is often thought of as the technological side of a system: the architecture, construction and optimization of the collaborating parts, but it also occasionally touches on softer factors such as user assistance (help desks), ethical considerations in deploying a system, and the larger implications of its design for others who come into contact with it. This book summarizes the state of research and practice in this emerging field of network and system administration, in an anthology of chapters written by the top academics in the field. The authors include members of the IST-EMANICS Network of Excellence in Network Management. This book will be a valuable reference work for researchers and senior system managers wanting to understand the essentials of system administration, whether in practical application of a data center or in the design of new sys-

tems and data centers. - Covers data center planning and design - Discusses configuration management - Illustrates business modeling and system administration - Provides the latest theoretical developments

The introduction of public key cryptography (PKC) was a critical advance in IT security. In contrast to symmetric key cryptography, it enables confidential communication between entities in open networks, in particular the Internet, without prior contact. Beyond this PKC also enables protection techniques that have no analogue in traditional cryptography, most importantly digital signatures which for example support Internet security by authenticating software downloads and updates. Although PKC does not require the confidential exchange of secret keys, proper management of the private and public keys used in PKC is still of vital importance: the private keys must remain private, and the public keys must be verifiably authentic. So understanding so-called public key infrastructures (PKIs) that manage key pairs is at least as important as studying the ingenious mathemati-

cal ideas underlying PKC. In this book the authors explain the most important concepts underlying PKIs and discuss relevant standards, implementations, and applications. The book is structured into chapters on the motivation for PKI, certificates, trust models, private keys, revocation, validity models, certification service providers, certificate policies, certification paths, and practical aspects of PKI. This is a suitable textbook for advanced undergraduate and graduate courses in computer science, mathematics, engineering, and related disciplines, complementing introductory courses on cryptography. The authors assume only basic computer science prerequisites, and they include exercises in all chapters and solutions in an appendix. They also include detailed pointers to relevant standards and implementation guidelines, so the book is also appropriate for self-study and reference by industrial and academic researchers and practitioners.

ASN.1 Complete teaches you everything you need to know about ASN.1-whether you're specifying a new protocol or implementing an existing one in a software or hard-

ware development project. Inside, the author begins with an overview of ASN.1's most commonly encountered features, detailing and illustrating standard techniques for using them. He then goes on to apply the same practice-oriented approach to all of the notation's other features, providing you with an easy-to-navigate, truly comprehensive tutorial. The book also includes thorough documentation of both the Basic and the Packed Encoding Rules-indispensable coverage for anyone doing hand-encoding, and a valuable resource for anyone wanting a deeper understanding of how ASN.1 and ASN.1 tools work. The concluding section takes up the history of ASN.1, in terms of both the evolution of the notation itself and the role it has played in hundreds of protocols and thousands of applications developed since its inception. Features Covers all the features-common and not so common-available to you when writing a protocol specification using ASN.1. Teaches you to read, understand, and implement a specification written using ASN.1. Explains how ASN.1 tools work and how to use them. Contains hundreds of detailed exam-

ples, all verified using OS-S's ASN.1 Tools package. Considers ASN.1 in relation to other protocol specification standards.

This volume contains the proceedings of the 2012 International Conference of Modern Computer Science and Applications (MCSA 2012) which was held on September 8, 2012 in Wuhan, China. The MCSA 2012 provides an excellent international forum for sharing knowledge and results in theory, methodology and applications of modern computer science and applications in theoretical and practical aspects.

Information modeling plays an important role in every level of the enterprise information system's architecture. Modeling allows organizations to adapt and become more efficient, helping top managers and engineers outline tactics to reach strategic objectives, understand organizational needs, and design information systems that are aligned with business goals. *New Perspectives on Information Systems Modeling and Design* is an essential reference source that discusses organizational adaptation through the integration of new information technologies into existing processes and underlying

supporting applications. Featuring research on topics such as application integration, change management, and mobile process activities, this book is ideally designed for managers, researchers, system developers, entrepreneurs, graduate-level students, business professionals, information system engineers, and academicians seeking coverage on emerging technological developments and practical solutions for system modeling and design.

This book gathers the proceedings of the 20th International Conference on Advanced Computer Systems 2016, held in Międzyzdroje (Poland) on October 19-21, 2016. Addressing topics that include artificial intelligence (AI), software technologies, multimedia systems, IT security and design of information systems, the main purpose of the conference and the book is to create an opportunity to exchange significant insights on this area between science and business. In particular, this expertise concerns the use of hard and soft computational methods for artificial intelligence, image and data processing, and finally, the design of information and security sys-

tems. The book contains a collection of carefully selected, peer-reviewed papers, combining high-quality original unpublished research, case studies, and implementation experiences.

Thirty years ago, the most likely place to find a biologist was standing at a laboratory bench, peering down a microscope, surrounded by flasks of chemicals and petri dishes full of bacteria. Today, you are just as likely to find him or her in a room that looks more like an office, poring over lines of code on computer screens. The use of computers in biology has radically transformed who biologists are, what they do, and how they understand life. In *Life Out of Sequence*, Hal-lam Stevens looks inside this new landscape of digital scientific work. Stevens chronicles the emergence of bioinformatics—the mode of working across and between biology, computing, mathematics, and statistics—from the 1960s to the present, seeking to understand how knowledge about life is made in and through virtual spaces. He shows how scientific data moves from living organisms into DNA sequencing machines, through software, and into databases,

images, and scientific publications. What he reveals is a biology very different from the one of predigital days: a biology that includes not only biologists but also highly interdisciplinary teams of managers and workers; a biology that is more centered on DNA sequencing, but one that understands sequence in terms of dynamic cascades and highly interconnected networks. *Life Out of Sequence* thus offers the computational biology community welcome context for their own work while also giving the public a frontline perspective of what is going on in this rapidly changing field.

The revised edition of the classic *Core Java™, Volume II—Advanced Features*, covers advanced user-interface programming and the enterprise features of the Java SE 6 platform. Like *Volume I* (which covers the core language and library features), this volume has been updated for Java SE 6 and new coverage is highlighted throughout. All sample programs have been carefully crafted to illustrate the latest programming techniques, displaying best-practices solutions to the types of real-world problems professional developers encoun-

ter. *Volume II* includes new sections on the StAX API, JDBC 4, compiler API, scripting framework, splash screen and tray APIs, and many other Java SE 6 enhancements. In this book, the authors focus on the more advanced features of the Java language, including complete coverage of Streams and Files Networking Database programming XML JNDI and LDAP Internationalization Advanced GUI components Java 2D and advanced AWT JavaBeans Security RMI and Web services Collections Annotations Native methods For thorough coverage of Java fundamentals—including interfaces and inner classes, GUI programming with Swing, exception handling, generics, collections, and concurrency—look for the eighth edition of *Core Java™, Volume I—Fundamentals* (ISBN: 978-0-13-235476-9).

In this era where data and voice services are available at a push of a button, service providers have virtually limitless options for reaching their customers with value-added services. The changes in services and underlying networks that this always-on culture creates make it essential for service providers to understand

the evolving business logic and appropriate support systems for service delivery, billing, and revenue assurance. Supplying an end-to-end understanding of telecom management layers, *Fundamentals of EMS, NMS and OSS/BSS* is a complete guide to telecom resource and service management basics. Divided into four sections: Element Management System, Network Management System, Operation/Business Support Systems, and Implementation Guidelines, the book examines standards, best practices, and the industries developing these systems. Each section starts with basics, details how the system fits into the telecom management framework, and concludes by introducing more complex concepts. From the initial efforts in managing elements to the latest management standards, the text: Covers the basics of network management, including legacy systems, management protocols, and popular products Deals with OSS/BSS—covering processes, applications, and interfaces in the service/business management layers Includes implementation guidelines for developing customized management solutions The book includes

chapters devoted to popular market products and contains case studies that illustrate real-life implementations as well as the interaction between management layers. Complete with detailed references and lists of web resources to keep you current, this valuable resource supplies you with the fundamental understanding and the tools required to begin developing telecom management solutions tailored to your customer's needs.

There are two groups of researchers who are interested in designing network protocols and who cannot (yet) effectively communicate with one another concerning these protocols. The first is the group of protocol verifiers, and the second is the group of protocol implementors. The main reason for the lack of effective communication between these two groups is that these groups use languages with quite different semantics to specify network protocols. On one hand, the protocol verifiers use specification languages whose semantics are abstract, coarse-grained, and with large atomicity. Clearly, protocol specifications that are developed based on such

semantics are easier to prove correct. On the other hand, the protocol implementors use specification languages whose semantics are concrete, fine-grained, and with small atomicity. Protocol specifications that are developed based on such semantics are easier to implement using system programming languages such as C, C++, and Java. To help in closing this communication gap between the group of protocol verifiers and the group of protocol implementors, we present in this monograph a protocol specification language called the Timed Abstract Protocol (or TAP, for short) notation. This notation is greatly influenced by the Abstract Protocol Notation in the textbook *Elements of Network Protocol Design*, written by the second author, Mohamed G. Gouda. The TAP notation has two types of semantics: an abstract semantics that appeals to the protocol verifiers and a concrete semantics that appeals to the protocol implementors group.

Over the past two decades, we have witnessed unprecedented innovations in the development of miniaturized electromechanical devices and low-power wireless communi-

cation making practical the embedding of networked computational devices into a rapidly widening range of material entities. This trend has enabled the coupling of physical objects and digital information into cyber-physical systems and it is widely expected to revolutionize the way resource consumption and provision will occur. Specifically, one of the core ingredients of this vision, the so-called Internet of Things (IoT), demands the provision of networked services to support interaction between conventional IT systems with both physical and artificial objects. In this way, IoT is seen as a combination of several emerging technologies, which enables the transformation of everyday objects into smart objects. It is also perceived as a paradigm that connects real world with digital world. The focus of this book is exactly on the novel collective and computational intelligence technologies that will be required to achieve this goal. While, one of the aims of this book is to discuss the progress made, it also prompts future directions on the utilization of inter-operable and cooperative next generation computational

technologies, which supports the IoT approach, that being an advanced functioning towards an integrated collective intelligence approach for the benefit of various organizational settings.

Covering past, present and future transport networks using three layered planes written by experts in the field. Targeted at both practitioners and academics as a single source to get an understanding of how transport networks are built and operated Explains technologies enabling the next generation transport networks

International Tables for Crystallography Volume G, Definition and exchange of crystallographic data, describes the standard data exchange and archival file format (the Crystallographic Information File, or CIF) used throughout crystallography. It provides in-depth information vital for small-molecule, inorganic and macromolecular crystallographers, mineralogists, chemists, materials scientists, solid-state physicists and others who wish to record or use the results of a single-crystal or powder diffraction experiment. The volume also provides the detailed data ontology necessary for programmers and

database managers to design interoperable computer applications. The accompanying CD-ROM contains the CIF dictionaries in machine-readable form and a collection of libraries and utility programs. This volume is an essential guide and reference for programmers of crystallographic software, data managers handling crystal-structure information and practising crystallographers who need to use CIF.

This book constitutes the thoroughly refereed post-conference proceedings of the 15th International SDL Forum, SDL 2011, held in Toulouse, France, in July 2011. The 16 revised full papers presented together were carefully reviewed and selected for inclusion in the book. The papers cover a wide range of topics such as SDL and related languages; testing; and services and components to a wide range presentations of domain specific languages and applications, going from use maps to train station models or user interfaces for scientific dataset editors for high performance computing.

The current and definitive reference broadcast engineers need! Compiled by leading international ex-

perts, this authoritative reference work covers every aspect of broadcast technology from camera to transmitter - encompassing subjects from analogue techniques to the latest digital compression and interactive technologies in a single source. Written with a minimum of maths, the book provides detailed coverage and quick access to key technologies, standards and practices. This global work will become your number one resource whether you are from an audio, video, communications or computing background. Composed for the industry professional, practicing engineer, technician or sales person looking for a guide that covers the broad landscape of television technology in one handy source, the Broadcast Engineer's Reference Book offers comprehensive and accurate technical information. Get this wealth of information at your fingertips! · Utilize extensive illustrations-more than 1200 tables, charts and photographs. · Find easy access to essential technical and standards data. · Discover information on every aspect of television technology. · Learn the concepts and terms every broadcaster needs to know. Learn

from the experts on the following technologies: Quantities and Units; Error Correction; Network Technologies; Telco Technologies; Displays; Colourimetry; Audio Systems; Television Standards; Colour encoding; Time code; VBI data carriage; Broadcast Interconnect formats; File storage formats; HDTV; MPEG 2; DVB; Data Broadcast; ATSC Interactive TV; encryption systems; Optical systems; Studio Cameras and camcorders; VTRs and Tape Storage; Standards Convertors; TV Studios and Studio Equipment; Studio Lighting and Control; post production systems; Telecines; HDTV production systems; Media Asset Management systems; Electronic News Production Systems; OB vehicles and Mobile Control Rooms; ENG and EFP; Power and Battery Systems; R.F. propagation; Service Area Planning; Masts Towers and Antennas; Test and measurement; Systems management; and many more! Related Focal Press titles: Watkinson: *Convergence In Broadcast and Communications Media* (2001, £59.99 (GBP)/ \$75.95 (USD), ISBN: 0240515099) Watkinson: *MPEG Handbook* (2001, £35 (GBP)/\$54.99 (USD) ISBN: 0240516567)

An exploration of research in functional programming, featuring an international list of contributors. Topics covered include the exploitation of parallelism, compiler optimization techniques and research in type theory. Practice is not ignored, with papers on topics including an assessment of the applicability of the functional language Haskell for business applications, and a paper describing how to automatically repair type errors - a potentially important tool for users of strongly typed languages.

Demonstrates the advanced features of the most recent upgrade to the Java programming language, covering topics including multithreading, collections, networking, remote objects, JavaBeans, and GUI-building techniques.

This is an excellent introduction to formal methods which will bring anyone who needs to know about this important topic up to speed. It is comprehensive, giving the reader all the information needed to explore the field of formal methods in more detail. It offers: a guide to the mathematics required; comprehensive but easy-to-understand introduc-

tions to various methods; a run-down of how formal methods can help to develop high-quality systems that come in on time, within budget, and according to requirements.

Remoting offers developers many ways to customize the communications process, for efficiency, security, performance and power, and allows seamless integration of components running on several computers into a single application. This book exposes the full power of remoting to developers working in mixed platform environments in a way that will ensure they have a deep understanding of what remoting is capable of, and how they can make it work the way they want.

Embedded microprocessor systems are affecting our daily lives at a fast pace, mostly unrecognised by the general public. Most of us are aware of the part they are playing in increasing business efficiency through office applications such as personal computers, printers and copiers. Only a few people, however, fully appreciate the growing role of embedded systems in telecommunications and industrial environments, or even in everyday products like cars and

home appliances. The challenge to engineers and managers is not only highlighted by the sheer size of the market, ' 1.5 billion microcontrollers and microprocessors are produced every year ' but also by the accelerating innovation in embedded systems towards higher complexity in hardware, software and tools as well as towards higher performance and lower consumption. To maintain competitiveness in this demanding environment, an optimum mix of innovation, time to market and system cost is required. Choosing the right options and strategies for products and companies is crucial and rarely obvious. In this book the editors have, therefore, skilfully brought together more than fifty contributions

from some of the leading authorities in embedded systems. The papers are conveniently grouped in four sections.

"This book is a collection of widespread research providing relevant theoretical frameworks and research findings on the applications of distributed computing innovations to the business, engineering and science fields"--Provided by publisher.

In today's digital environment, distributed systems are increasingly present in a wide variety of environments, ranging from public software applications to critical systems. Distributed Systems introduces the underlying concepts, the associated design techniques and the related security issues. Distributed Systems: Design and Algorithms, is dedicated to-

engineers, students, and anyone familiar with algorithms and programming, who want to know more about distributed systems. These systems are characterized by: several components with one or more threads, possibly running on different processors; asynchronous communications with possible additional assumptions (reliability, order preserving, etc.); local views for every component and no shared data between components. This title presents distributed systems from a point of view dedicated to their design and their main principles: the main algorithms are described and placed in their application context, i.e. consistency management and the way they are used in distributed file-systems.