

Algorithms Unlocked

In the modern hyperconnected society, consumers are able to access news from a variety of channels, including social media, television, mobile devices, the internet, and more. From sensationalist headlines designed to attract click-throughs to accusations of bias assigned to specific news sources, it is more important now than ever that the media industry maintains best practices and adheres to ethical reporting. By properly informing citizens of critical national concerns, the media can help to transform society and promote active participation. *Journalism and Ethics: Breakthroughs in Research and Practice* examines the impacts of journalism on society and the media's responsibility to accurately inform citizens of government and non-government activities in an ethical manner. It also provides emerging research on multimedia journalism across various platforms and formats using digital technologies. Highlighting a range of pertinent topics such as investigative journalism, freedom of expression, and media regulation, this publication is an ideal reference source for media professionals, public relations officers, reporters, news writers, scholars, academicians, researchers, and upper-level students interested in journalism and journalistic ethics.

This volume gives the proceedings of the Tenth Conference on Foundations of Software Technology and Theoretical Computer Science. These conferences are organized and run by the computer science research community in India, and their purpose is to provide a forum for professional interaction between members of this research community and their counterparts in different parts of the world. The volume includes four invited papers on: - reasoning about linear constraints using parametric queries, - the parallel evaluation of classes of circuits, - a theory of commonsense visual reasoning, - natural language processing, complexity theory and logic. The 26 submitted papers are organized into sections on logic, automata and formal languages, theory of programming, parallel algorithms, geometric algorithms, concurrency, distributed computing, and semantics.

At the heart of modern cryptographic algorithms lies computational number theory. Whether you're encrypting or decrypting ciphers, a solid background in number theory is essential for success. Written by a number theorist and practicing cryptographer, *Cryptanalysis of Number Theoretic Ciphers* takes you from basic number theory to the inner workings of ciphers and protocols. First, the book provides the mathematical background needed in cryptography as well as definitions and simple examples from cryptography. It includes summaries of elementary number theory and group theory, as well as common methods of finding or constructing large random primes, factoring large integers, and computing discrete logarithms. Next, it describes a selection of cryptographic algorithms, most of which use number theory. Finally, the book presents methods of attack on the cryptographic algorithms and assesses their effectiveness. For each attack method the author lists the systems it applies to and tells how they may be broken with it. Computational number theorists are some of the most successful cryptanalysts against public key systems. *Cryptanalysis of Number Theoretic Ciphers* builds a solid foundation in number theory and shows you how to apply it not only when breaking ciphers, but also when designing ones that are difficult to break.

Annotation This book constitutes the refereed proceedings of the 16th International Euro-Par Conference held in Ischia, Italy, in August/September 2010. The 90 revised

full papers presented were carefully reviewed and selected from 256 submissions. The papers are organized in topical sections on support tools and environments; performance prediction and evaluation; scheduling and load-balancing; high performance architectures and compilers; parallel and distributed data management; grid, cluster and cloud computing; peer to peer computing; distributed systems and algorithms; parallel and distributed programming; parallel numerical algorithms; multicore and manycore programming; theory and algorithms for parallel computation; high performance networks; and mobile and ubiquitous computing.

This volume explores the many facets and ongoing transformations of our visual identities in the twentieth and twenty-first centuries. Its chapters engage with the constitution of personal, national and cultural identities at the intersection of the verbal and the visual across a range of media. They are attentive to how the medialities and (im)materialities of modern image culture inflect our conceptions of identity, examining the cultural and political force of literature, films, online video messages, rap songs, selfies, digital algorithms, social media, computer-generated images, photojournalism and branding, among others. They also reflect on the image theories that emerged in the same time span—from early theorists such as Charles S. Peirce to twentieth-century models like those proposed by Roland Barthes and Jacques Derrida as well as more recent theories by Jacques Rancière, W. J. T. Mitchell and others. The contributors of *Imaging Identity* come from a wide range of disciplines including literary studies, media studies, art history, tourism studies and semiotics. The book will appeal to an interdisciplinary readership interested in contemporary visual culture and image theory.

Algorithms Unlocked MIT Press

User-Driven Healthcare: Concepts, Methodologies, Tools, and Applications provides a global discussion on the practice of user-driven learning in healthcare and connected disciplines and its influence on learning through clinical problem solving. This book brings together different perspectives for researchers and practitioners to develop a comprehensive framework of user-driven healthcare.

Demonstrates techniques which will allow rewiring rates of over 95%, enabling adoption of deep sub-micron chips for industrial applications Logic synthesis is an essential part of the modern digital IC design process in semi-conductor industry. This book discusses a logic synthesis technique called “rewiring” and its latest technical advancement in term of rewirability. Rewiring technique has surfaced in academic research since 1993 and there is currently no book available on the market which systematically and comprehensively discusses this rewiring technology. The authors cover logic transformation techniques with concentration on rewiring. For many decades, the effect of wiring on logic structures has been ignored due to an ideal view of wires and their negligible role in the circuit performance. However in today’s semiconductor technology wiring is the major player in circuit performance degeneration and logic synthesis engines can be improved to deal with this through wire-based transformations. This book introduces the automatic test pattern generation (ATPG)-based rewiring techniques, which are recently active in the realm of logic synthesis/verification of VLSI/SOC designs. Unique comprehensive coverage of semiconductor rewiring techniques written by leading researchers in the field Provides complete coverage of rewiring from an introductory to intermediate level Rewiring is explained as a flexible technique for Boolean logic synthesis, introducing the concept of

Boolean circuit transformation and testing, with examples Readers can directly apply the described techniques to real-world VLSI design issues Focuses on the automatic test pattern generation (ATPG) based rewiring methods although some non-ATPG based rewiring methods such as graph based alternative wiring (GBAW), and “set of pairs of functions to be distinguished” (SPFD) based rewiring are also discussed A valuable resource for researchers and postgraduate students in VLSI and SoC design, as well as digital design engineers, EDA software developers, and design automation experts that specialize in the synthesis and optimization of logical circuits.

Extensively class-tested, this textbook takes an innovative approach to software testing: it defines testing as the process of applying a few well-defined, general-purpose test criteria to a structure or model of the software. It incorporates the latest innovations in testing, including techniques to test modern types of software such as OO, web applications, and embedded software. The book contains numerous examples throughout. An instructor's solution manual, PowerPoint slides, sample syllabi, additional examples and updates, testing tools for students, and example software programs in Java are available on an extensive website.

This book comprises theoretical foundations to deep learning, machine learning and computing system, deep learning algorithms, and various deep learning applications. The book discusses significant issues relating to deep learning in data analytics. Further in-depth reading can be done from the detailed bibliography presented at the end of each chapter. Besides, this book's material includes concepts, algorithms, figures, graphs, and tables in guiding researchers through deep learning in data science and its applications for society. Deep learning approaches prevent loss of information and hence enhance the performance of data analysis and learning techniques. It brings up many research issues in the industry and research community to capture and access data effectively. The book provides the conceptual basis of deep learning required to achieve in-depth knowledge in computer and data science. It has been done to make the book more flexible and to stimulate further interest in topics. All these help researchers motivate towards learning and implementing the concepts in real-life applications.

In the past two decades, research in VLSI physical design has been directed toward automation of layout process. Since the cost of fabricating a circuit is a fast growing function of the circuit area, circuit layout techniques are developed with an aim to produce layouts with small areas. Other criteria of optimality such as delay and via minimization need to be taken into consideration. This book includes 14 articles that deal with various stages of the VLSI layout problem. It covers topics including partitioning, floorplanning, placement, global routing, detailed routing and layout verification. Some of the chapters are review articles, giving the state-of-the-art of the problems related to timing driven placement, global and detailed routing, and circuit partitioning. The rest of the book contains research articles, giving recent findings of new approaches to the above-mentioned problems. They are all written by leading experts in the field. This book will serve as good references for both researchers and professionals who work in this field.

he fun, fast, and easy way to learn programming fundamentals and essentials – from C to Visual Basic and all the languages in between So you want to be a programmer? Or maybe you just want to make your computer do what YOU want for a change? Maybe

you enjoy the challenge of identifying a problem and solving it. If programming intrigues you (for whatever reason), *Beginning Programming All-In-One Desk Reference For Dummies* is like having a starter programming library all in one handy, if hefty, book. In this practical guide, you'll find out about algorithms, best practices, compiling, debugging your programs, and much more. The concepts are illustrated in several different programming languages, so you'll get a feel for the variety of languages and the needs they fill. Inside you'll discover seven minibooks: *Getting Started: From learning methods for writing programs to becoming familiar with types of programming languages*, you'll lay the foundation for your programming adventure with this minibook. *Programming Basics: Here you'll dive into how programs work, variables, data types, branching, looping, subprograms, objects, and more.* *Data Structures: From structures, arrays, sets, linked lists, and collections, to stacks, queues, graphs, and trees*, you'll dig deeply into the data. *Algorithms: This minibook shows you how to sort and search algorithms, how to use string searching, and gets into data compression and encryption.* *Web Programming: Learn everything you need to know about coding for the web: HyperText Markup Language (better known simply as HTML), CSS, JavaScript, PHP, and Ruby.* *Programming Language Syntax: Introduces you to the syntax of various languages – C, C++, Java, C#, Perl, Python, Pascal, Delphi, Visual Basic, REALbasic – so you know when to use which one.* *Applications: This is the fun part where you put your newly developed programming skills to work in practical ways.* Additionally, *Beginning Programming All-In-One Desk Reference For Dummies* shows you how to decide what you want your program to do, turn your instructions into "machine language" that the computer understands, use programming best practices, explore the "how" and "why" of data structuring, and more. And you'll get a look into various applications like database management, bioinformatics, computer security, and artificial intelligence. After you get this book and start coding, you'll soon realize that — wow! You're a programmer!

This book constitutes the thoroughly refereed post-proceedings of the Japanese Conference on Discrete Computational Geometry, JCDCG 2001, held in Tokyo, Japan in November 2001. The 35 revised papers presented were carefully reviewed and selected. Among the topics covered are polygons and polyhedrons, divisible dissections, convex polygon packings, symmetric subsets, convex decompositions, graph drawing, graph computations, point sets, approximation, Delaunay diagrams, triangulations, chromatic numbers, complexity, layer routing, efficient algorithms, and illumination problems.

This book constitutes the refereed proceedings of the 13th International Conference on Parallel Computational Technologies, PCT 2019, held in Kaliningrad, Russia, in April 2019. The 24 revised full papers presented were carefully reviewed and selected from 96 submissions. The papers are organized in topical sections on high performance architectures, tools and technologies; parallel numerical algorithms; supercomputer simulation.

This is the second edition of the book *Token Economy* originally published in June 2019. The basic structure of this second edition is the same as the first edition, with slightly updated content of existing chapters and four additional chapters: "User-Centric Identities," "Privacy Tokens," "Lending Tokens," and *How to Design a Token System* and more focus on the Web3. //Part one outlines the fundamental building blocks of the

Web3, including the role of cryptography and user-centric digital identities. Part two explains Web3 applications like smart contracts, DAOs & tokens. The last two parts of the book focus on tokens as the atomic unit of the Web3, explaining the properties and functions of money and outlining the emerging field of decentralized finance (DeFi) that might power a potential future digital barter economy. Use cases such as asset tokens, purpose driven tokens, BAT (Basic Attention Token), social media tokens (Steemit, Hive and Reddit), privacy tokens, and stable tokens are explored, including the role of CBDCs (Central Bank Digital Currencies) and Facebook's Libra. // Tokens - often referred to as cryptocurrencies - can represent anything from an asset to an access right, such as gold, diamonds, a fraction of a Picasso painting or an entry ticket to a concert. Tokens could also be used to reward social media contributions, incentivize the reduction of CO2 emissions, or even ones attention for watching an ad. While it has become easy to create a token, which is collectively managed by a public Web3 infrastructure like a blockchain network, the understanding of how to apply these tokens is still vague. This book attempts to summarize existing knowledge about blockchain networks and other distributed ledgers as the backbone of the Web3, and contextualize the socio-economic implications of the Web3 applications such as smart contracts, tokens, and DAOs to the concepts of money, economics, governance and decentralized finance (DeFi). // The industry keeps referring to "Blockchain" as different from "Bitcoin," creating an artificial divide that is often misleading. There seems to be too little understanding about the fact that Bitcoin is a blockchain network, which is (a) globally managed by people who mostly do not know each other, and (b) enabled by the consensus protocol that (c) incentivizes all network actors for their contributions with a native token. The governance rules are tied to the minting of a native blockchain token. The Bitcoin token can, therefore, be seen as the currency of a distributed Internet tribe, called the Bitcoin network, where network actors are rewarded with Bitcoins, just as the Ether is the currency of the distributed Internet tribe Ethereum network, or Sia is the native currency of the Sia network. The Bitcoin network and other distributed ledgers all represent a collectively maintained public infrastructure and are the backbone of the next generation Internet, what the crypto community refers to as the Web3.

Fully revised a Designed for the introductory computing and computer science course, the student-friendly Computer Science Illuminated, Seventh Edition provides students with a solid foundation for further study, and offers non-majors a complete introduction to computing. Fully revised and updated, the Seventh Edition of this best-selling text retains the accessibility and in-depth coverage of previous editions, while incorporating all-new material on cutting-edge issues in computer science. Authored by the award-winning team Nell Dale and John nd updated, the Seventh Edition of the best-selling text Computer Science Illuminated retains the accessibility and in-depth coverage of previous editions, while incorporating all-new material on cutting-edge issues in computer science. Authored by the award-winning Nell Dale and John Lewis, Computer Science Illuminated's unique and innovative layered approach moves through the levels of computing from an organized, language-neutral perspective.

Flexible, Reliable Software: Using Patterns and Agile Development guides students through the software development process. By describing practical stories, explaining the design and programming process in detail, and using projects as a learning context,

the text helps readers understand why a given technique is required and why techniques must be combined to overcome the challenges facing software developers. The presentation is pedagogically organized as a realistic development story in which customer requests require introducing new techniques to combat ever-increasing software complexity. After an overview and introduction of basic terminology, the book presents the core practices, concepts, tools, and analytic skills for designing flexible and reliable software, including test-driven development, refactoring, design patterns, test doubles, and responsibility driven and compositional design. It then provides a collection of design patterns leading to a thorough discussion of frameworks, exemplified by a graphical user interface framework (MiniDraw). The author also discusses the important topics of configuration management and systematic testing. In the last chapter, projects lead students to design and implement their own frameworks, resulting in a reliable and usable implementation of a large and complex software system complete with a graphical user interface. This text teaches how to design, program, and maintain flexible and reliable software. Installation guides, source code for the examples, exercises, and projects can be found on the author's website. This book provides a comprehensive overview of the state-of-the-art, data flow-based techniques for the analysis, modeling and mapping technologies of concurrent applications on multi-processors. The authors present a flow for designing embedded hard/firm real-time multiprocessor streaming applications, based on data flow formalisms, with a particular focus on wireless modem applications. Architectures are described for the design tools and run-time scheduling and resource management of such a platform.

An introduction to algorithms for readers with no background in advanced mathematics or computer science, emphasizing examples and real-world problems. Algorithms are what we do in order not to have to do something. Algorithms consist of instructions to carry out tasks—usually dull, repetitive ones. Starting from simple building blocks, computer algorithms enable machines to recognize and produce speech, translate texts, categorize and summarize documents, describe images, and predict the weather. A task that would take hours can be completed in virtually no time by using a few lines of code in a modern scripting program. This book offers an introduction to algorithms through the real-world problems they solve. The algorithms are presented in pseudocode and can readily be implemented in a computer language. The book presents algorithms simply and accessibly, without overwhelming readers or insulting their intelligence. Readers should be comfortable with mathematical fundamentals and have a basic understanding of how computers work; all other necessary concepts are explained in the text. After presenting background in pseudocode conventions, basic terminology, and data structures, chapters cover compression, cryptography, graphs, searching and sorting, hashing, classification, strings, and chance. Each chapter describes real problems and then presents algorithms to solve them. Examples illustrate the wide range of applications, including shortest paths as a solution to paragraph line breaks, strongest paths in elections systems, hashes for song recognition, voting power Monte Carlo methods, and entropy for machine learning. Real-World Algorithms can be used by students in disciplines from economics to applied sciences. Computer science majors can read it before using a more technical text. This book constitutes the refereed proceedings of the 5th International Workshop on

Software Engineering for Resilient Systems, SERENE 2013, held in Kiev, Ukraine, in October 2013. The 13 revised full papers were carefully reviewed and selected from 21 submissions. The papers are organized in topical sections on resilient software and design, rigorous reasoning, applications, concepts, and analysis.

An accessible introduction to algorithms, explaining not just what they are but how they work, with examples from a wide range of application areas. Digital technology runs on algorithms, sets of instructions that describe how to do something efficiently.

Application areas range from search engines to tournament scheduling, DNA sequencing, and machine learning. Arguing that every educated person today needs to have some understanding of algorithms and what they do, in this volume in the MIT Press Essential Knowledge series, Panos Louridas offers an introduction to algorithms that is accessible to the nonspecialist reader. Louridas explains not just what algorithms are but also how they work, offering a wide range of examples and keeping mathematics to a minimum. After discussing what an algorithm does and how its effectiveness can be measured, Louridas covers three of the most fundamental applications areas: graphs, which describe networks, from eighteenth-century problems to today's social networks; searching, and how to find the fastest way to search; and sorting, and the importance of choosing the best algorithm for particular tasks. He then presents larger-scale applications: PageRank, Google's founding algorithm; and neural networks and deep learning. Finally, Louridas describes how all algorithms are nothing more than simple moves with pen and paper, and how from such a humble foundation rise all their spectacular achievements.

Real-World Cryptography teaches you applied cryptographic techniques to understand and apply security at every level of your systems and applications. You'll go hands-on with cryptography building blocks such as hash functions and key exchanges, then learn how to use them as part of your security protocols and applications. If you're browsing the web, using public APIs, making and receiving electronic payments, or experimenting with blockchain, you're relying on cryptography. And you're probably trusting a collection of tools, frameworks, and protocols to keep your data, users, and business safe. It's important to understand these tools so you can make the best decisions about how, where, and why to use them. Real-World Cryptography teaches you applied cryptographic techniques to understand and apply security at every level of your systems and applications. You'll go hands-on with cryptography building blocks such as hash functions and key exchanges, then learn how to use them as part of your security protocols and applications. Alongside modern methods, the book also explores the future of cryptography, diving into emerging and cutting-edge advances such as cryptocurrencies, password-authenticated key exchange, and post-quantum cryptography. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications.

The idea of evolving machines, whose origins can be traced to the cybernetics movement of the 1940s and 1950s, has recently resurged in the form of the nascent field of bio-inspired systems and evolvable hardware. The inaugural workshop, Towards Evolvable Hardware, took place in Lausanne in October 1995, followed by the First International Conference on Evolvable Systems: From Biology to Hardware (ICES), held in Tsukuba, Japan in October 1996. The second ICES conference was held in Lausanne in September 1998, with the third and fourth being held in Edinburgh, April 2000 and Tokyo, October 2001 respectively. This has become the leading conference in the field of evolvable systems and the 2003 conference promised to be at least as good as, if not better than, the four that preceded it. The 7th international conference was built on the success of its predecessors, aiming at presenting the

latest developments in the field. In addition, it brought together researchers who use biologically inspired concepts to implement real systems in artificial intelligence, artificial life, robotics, VLSI design and related domains. We would say that this 7th conference followed on from the previous four in that it consisted of a number of high-quality interesting thought-provoking papers.

This book constitutes the refereed proceedings of the First International Conference on Advances in Parallel, Distributed Computing Technologies and Applications, PDCTA 2011, held in Tirunelveli, India, in September 2011. The 64 revised full papers were carefully reviewed and selected from over 400 submissions. Providing an excellent international forum for sharing knowledge and results in theory, methodology and applications of parallel, distributed computing the papers address all current issues in this field with special focus on algorithms and applications, computer networks, cyber trust and security, wireless networks, as well as mobile computing and bioinformatics.

Obtain better system performance, lower energy consumption, and avoid hand-coding arithmetic functions with this concise guide to automated optimization techniques for hardware and software design. High-level compiler optimizations and high-speed architectures for implementing FIR filters are covered, which can improve performance in communications, signal processing, computer graphics, and cryptography. Clearly explained algorithms and illustrative examples throughout make it easy to understand the techniques and write software for their implementation. Background information on the synthesis of arithmetic expressions and computer arithmetic is also included, making the book ideal for newcomers to the subject. This is an invaluable resource for researchers, professionals, and graduate students working in system level design and automation, compilers, and VLSI CAD.

The subject of sparse matrices has its root in such diverse fields as management science, power systems analysis, surveying, circuit theory, and structural analysis. Efficient use of sparsity is a key to solving large problems in many fields. This second edition is a complete rewrite of the first edition published 30 years ago. Much has changed since that time. Problems have grown greatly in size and complexity; nearly all examples in the first edition were of order less than 5,000 in the first edition, and are often more than a million in the second edition. Computer architectures are now much more complex, requiring new ways of adapting algorithms to parallel environments with memory hierarchies. Because the area is such an important one to all of computational science and engineering, a huge amount of research has been done in the last 30 years, some of it by the authors themselves. This new research is integrated into the text with a clear explanation of the underlying mathematics and algorithms. New research that is described includes new techniques for scaling and error control, new orderings, new combinatorial techniques for partitioning both symmetric and unsymmetric problems, and a detailed description of the multifrontal approach to solving systems that was pioneered by the research of the authors and colleagues. This includes a discussion of techniques for exploiting parallel architectures and new work for indefinite and unsymmetric systems.

In less than a decade, mobile technology has revolutionized our cultures, societies, and economies by impacting both personal and professional aspects of human life. Mobile technology has therefore become the fastest diffusing technology in history, expanding and transforming existent possibilities by making technology accessible and ubiquitous. Emerging Perspectives on the Mobile Content Evolution seeks a better understanding of the centrality of mobile content in the recent and coming evolution of both the ICT ecosystem and the media industry. This publication appeals to a broad audience within the interdisciplinary field of media studies, covering topic areas such as journalism, marketing and advertising, broadcasting, information management, media management, media economics, media- and technology-related public policies, media sociology, audience/consumption studies, and arts. This

publication presents a multi-disciplinary discussion through a collection of academic chapters covering topics such as mobile communications and entrepreneurship, reflection on wearables and innovation, personal and mobile healthcare, mobile journalism and innovation, and behavioral targeting in the mobile ecosystem.

Euro-Par is an annual series of international conferences dedicated to the promotion and the advancement of all aspects of parallel computing. In Euro-Par, the field of parallel computing is divided into the four broad categories of theory, high performance, cluster and grid, and distributed and mobile computing. These categories are further subdivided into 14 topics that focus on particular areas in parallel computing. The objective of Euro-Par is to provide a forum for promoting the development of parallel computing both as an industrial technique and as an academic discipline, extending the frontier of both the state of the art and the state of the practice. The target audience of Euro-Par consists of researchers in parallel computing in academic departments, government laboratories, and industrial organizations. Euro-Par 2009 was the 15th conference in the Euro-Par series, and was organized by the Parallel and Distributed Systems Group of Delft University of Technology in Delft, The Netherlands. The previous Euro-Par conferences took place in Stockholm, Lyon, Passau, Southampton, Toulouse, Munich, Manchester, Paderborn, Klagenfurt, Pisa, Lisbon, Dresden, Rennes, and Las Palmas de Gran Canaria. Next year, the conference will be held in Sorrento, Italy. More information on the Euro-Par conference series and organization is available on its website at <http://www.europar.org>.

This book constitutes the refereed proceedings of the 16th International SPIN workshop on Model Checking Software, SPIN 2009, held in Grenoble, France, in June 2009. The 15 revised full papers presented together with 3 tool papers and 4 invited talks were carefully reviewed and selected from 41 submissions. The papers cover theoretical and algorithmic foundations as well as tools for software model checking by addressing theoretical advances and empirical evaluations related to state-space and path exploration techniques, as implemented in software verification tools.

This volume of *The Circuits and Filters Handbook, Third Edition* focuses on computer aided design and design automation. In the first part of the book, international contributors address topics such as the modeling of circuit performances, symbolic analysis methods, numerical analysis methods, design by optimization, statistical design optimization, and physical design automation. In the second half of the text, they turn their attention to RF CAD, high performance simulation, formal verification, RTK behavioral synthesis, system-level design, an Internet-based micro-electronic design automation framework, performance modeling, and embedded computing systems design.

Thinking Big Data in Geography offers a practical state-of-the-field overview of big data as both a means and an object of research, with essays from prominent and emerging scholars such as Rob Kitchin, Renee Sieber, and Mark Graham. Part 1 explores how the advent of geoweb technologies and big data sets has influenced some of geography's major subdisciplines: urban politics and political economy, human-environment interactions, and geographic information sciences. Part 2 addresses how the geographic study of big data has implications for other disciplinary fields, notably the digital humanities and the study of social justice. The volume concludes with theoretical applications of the geoweb and big data as they pertain to society as a whole, examining the ways in which user-generated data come into the world and are complicit in its unfolding. The contributors raise caution regarding the use of spatial big data, citing issues of accuracy, surveillance, and privacy.

This excellent title introduces the concept of mission-oriented sensor networks as distributed dynamic systems of interacting sensing devices that are networked to jointly execute complex real-time missions under uncertainty. It provides the latest, yet unpublished results on the main technical and application challenges of mission-oriented sensor networks. The authors of

each chapter are research leaders from multiple disciplines who are presenting their latest innovations on the issues. Together, the editors have compiled a comprehensive treatment of the subject that flows smoothly from chapter to chapter. This interdisciplinary approach significantly enhances the science and technology knowledge base and influences the military and civilian applications of this field.

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Christopher Griffin holds a Masters degree in Mathematics from Penn State and is currently pursuing his Ph.D. there. Mr. Griffin has worked as a research engineer at the Penn State Applied Research Laboratory for the last six years on several DARPA and or Army Research Laboratory sponsored programs, including: the Emergent Surveillance Plexus (ESP) program as a lead engineer; the DARPA sponsored Semantic Information Fusion program under the SensIT initiative, where he co-developed a distributed target tracking system and managed the development of a target classification algorithm using Level 1 sensor fusion techniques; as a co-principal software architect for the DARPA Joint Force Component Controller (JFACC) initiative, an adaptive C2 program aimed at improving Air Force response times; and he was the principal software architect for the Boeing/ARFL Insertion of Embedding Infosphere Technology (IEIST) program. His areas of research expertise are distributed tracking systems, mission oriented control, and system modeling.

For anyone who has ever wondered how computers solve problems, an engagingly written guide for nonexperts to the basics of computer algorithms. Have you ever wondered how your GPS can find the fastest way to your destination, selecting one route from seemingly countless possibilities in mere seconds? How your credit card account number is protected when you make a purchase over the Internet? The answer is algorithms. And how do these mathematical formulations translate themselves into your GPS, your laptop, or your smart phone? This book offers an engagingly written guide to the basics of computer algorithms. In *Algorithms Unlocked*, Thomas Cormen—coauthor of the leading college textbook on the subject—provides a general explanation, with limited mathematics, of how algorithms enable computers to solve problems. Readers will learn what computer algorithms are, how to describe them, and how to evaluate them. They will discover simple ways to search for information in a computer; methods for rearranging information in a computer into a prescribed order (“sorting”); how to solve basic problems that can be modeled in a computer with a mathematical structure called a “graph” (useful for modeling road networks, dependencies among tasks, and financial relationships); how to solve problems that ask questions about strings of characters such as DNA structures; the basic principles behind cryptography; fundamentals of data compression; and even that there are some problems that no one has figured out how to solve on a

computer in a reasonable amount of time.

New generations of IT users are increasingly abstracted from the underlying devices and platforms that provide and safeguard their services. As a result they may have little awareness that they are critically dependent on the embedded security devices that are becoming pervasive in daily modern life. *Secure Smart Embedded Devices, Platforms and Applications* provides a broad overview of the many security and practical issues of embedded devices, tokens, and their operation systems, platforms and main applications. It also addresses a diverse range of industry/government initiatives and considerations, while focusing strongly on technical and practical security issues. The benefits and pitfalls of developing and deploying applications that rely on embedded systems and their security functionality are presented. A sufficient level of technical detail to support embedded systems is provided throughout the text, although the book is quite readable for those seeking awareness through an initial overview of the topics. This edited volume benefits from the contributions of industry and academic experts and helps provide a cross-discipline overview of the security and practical issues for embedded systems, tokens, and platforms. It is an ideal complement to the earlier work, *Smart Cards Tokens, Security and Applications* from the same editors.

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