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Sci-Tech Book News Reviews

Susan Fingerman

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Sci-Tech Book News Reviews Susan Fingerman, Selector



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PSYCHOLOGY

BF77 2007-014600 978-1-4129-4030-6

Handbook on communicating and disseminating behavioral science.

Title main entry. Ed. by Melissa K. Welch-Ross and Lauren G. Fasig.

Sage Publications, ©2007 461 p. \$125.00
Contributors take students, researchers and recipients of research step by step through the process of collecting and distributing knowledge about behavioral sciences, starting by providing the historical background and the lessons learned, basic themes of current scholarship and journalistic practice within behavioral and social sciences, communication beyond the original discipline and beyond the academy, and explaining complex or uncertain findings. They give mass communication media priorities and processes, tips on communicating with the public, whether individually, online or through specialists, and methods to use with policy makers, including government organizations and think tanks. They also explain communication with medical practitioners, educators, the military and agencies. The appendix listing resources includes web sites.

AUXILIARY SCIENCES OF HISTORY

CD3021 2006-029961 978-0-7890-3437-3

Archives and the digital library.

Title main entry. Ed. by William E. Landis and Robin L. Chandler.

Haworth Pr., ©2006 270 p. \$85.00

Containing a dozen contributions from experts in library and information science, this volume examines some of the latest technological developments in digital archiving. The focus is on digitally reformatted surrogates of non-digital materials from archival collections. A sampling of topics includes a description of a project to digitally publish and preserve California local history; a discussion of the importance of user-centered design; and an examination of collection boundaries and management responsibilities relating to digital resources. The volume has

been simultaneously co-published as *Journal of Archival Organization*, Vol. 4, Nos. 1/2, 2006.

GEOGRAPHY

G70 2007-922921 978-1-4129-1015-6

Key concepts & techniques in GIS.

Albrecht, Jochen.

Sage Publications, ©2007 103 p. \$115.00

While there are possibly millions of people today who use GIS (geographic information system) technology, there are far fewer who have had a systematic introduction to the topic. Albrecht hopes to fill the gap by providing students and practitioners with such an introduction in this text. The topics covered include creating digital data, assessing existing data, handling uncertainty, spatial search, spatial relationships, combining spatial data, location-allocation, map algebra, terrain modeling, spatial statistics, geocomputation, and future directions.

PRODUCTION, INDUSTRY, COMMERCE

HD69 2006-910695 978-1-934240-02-1

Managing enterprise projects; using Microsoft Office Project Server 2007.

Chefetz, Gary L. and Dale A. Howard. (EPM learning)

MSProjectExperts, ©2007 874 p. \$99.00 (pa)

This is a complete reference to Microsoft's project management software, for project managers who use the Microsoft Enterprise Projects Management platform. The goal of the reference is to help readers build on their knowledge of the stand-alone tool by mastering the enterprise project management environment. Coverage is presented in 18 modules, covering tasks for planning and publishing an enterprise project, accepting updates into the enterprise project plan, analyzing project variance, setting up personal options, using the features in the Project Workspace, creating status reports, viewing project information, and analyzing data. Each module contains notes, warnings, and best practices, along with screen shots and step-by-step instructions and exercises. The authors are Microsoft Project consultants and trainers.

HF5548 2007-933000 978-0-7695-3003-1
E-business engineering (ICEBE 2007, SOAIC 2007, SOSE 2007, SOKM 2007); proceedings.

IEEE International Conference on e-Business Engineering (2007: Hong Kong, China)
 Ed. by S.C. Cheung et al. *Computer Society Press*, ©2007 765 p. \$272.00 (pa)

This collection consists of 36 full papers and 30 short papers from the October 2007 conference as well as 30 papers from a service-oriented system engineering workshop, six papers from a service modeling workshop, and eight papers from a service-oriented knowledge management workshop. The e-commerce papers present research on security and trust, quality of service in middleware and servers, electronic contracts, negotiation systems, document exchange, and collaboration. The short papers explore RFID technologies and service analysis, and share e-business case studies and industry reports. Workshop topics include ontology for service discovery, requirements engineering, SOA education, service composition, and web services. No subject index is provided.

LAW

KF8961 2007-006638 978-1-4200-5503-0
Expert witnessing and scientific testimony; surviving in the courtroom.

Cohen, Kenneth S., *CRC / Taylor & Francis*, ©2008
 258 p. \$99.95

The author distills his own experiences as a paid expert witness on industrial hygiene in order to give advice to others in the same position within the American legal system. He discusses legal issues of negligence, rules of evidence and codes of civil procedure, the body of scientific literature, the role the expert witness, legal language, courtroom procedure, professional liability, and expert fee practices.

ART, DESIGN

NA2545 2007-011402 978-0-8493-7493-7
Universal and accessible design for products, services, and processes.

Erlandson, Robert F.
CRC / Taylor & Francis, ©2008 258 p.
 \$89.95

If buildings should not have stairs that keep people out, why should products have features that bar users from being able to use them? Erlandson (electrical and computer engineering and bioengineering, Wayne State U.) notes that global competition and ethics, not to mention the laws of many nations, mandate engineering products, processes and services to suit as many people as possible, regardless of their

physicality. Focusing on recent research about the nature of disability and the ethics of universal and accessible design, Erlandson makes clear distinctions amongst universal, accessible and adaptable design, describes disability and disability laws and how they relate to accessible design, gives examples of universal design principles and strategies, and explains such concepts as ergonomic and cognitive soundness, perceptibility, flexibility, error-proofing, efficiency, stability, predictability, equitable treatment, and ethics. He includes information specific to the Wen and to social and political perspectives on universal and accessible design.

SCIENCE (GENERAL)

Q125 2006-035927 978-0-8135-4073-3
Science talk; changing notions of science in American popular culture.

Thurs, Daniel Patrick.
Rutgers U. Press, ©2007 237 p. \$44.95

Thurs (PhD, history of science, U. of Wisconsin at Madison) examines the rhetorical tools deployed to discuss science in the US popular press from the 19th century through the 20th century. Focusing on debates over what constitutes science that took place within discussions of phrenology, evolution, Einstein's relativity, and UFOs, he explores how the nature of the scientific changed conceptualized form, gaining boundaries that distinguished it from other forms of human knowledge with an "otherness" not characteristic of the 1800s.

Q130 2007-016049 978-1-84542-888-4
Women and minorities in science, technology, engineering and mathematics; upping the numbers.

Title main entry. Ed. by Ronald J. Burke and Mary C. Mattis.
Edward Elgar Publishing, ©2007 379 p.
 \$170.00

Continued economy-enhancing advances in science, technology, engineering, and math (STEM) may depend on attracting more women and minorities to the STEM workforce. Burke (organizational behavior, York U., Canada) and Mattis (The Wallace Foundation, New York) introduce 14 chapters addressing the challenges these groups face at all stages of the STEM pipeline. Before examining the experience of women and minorities in these technical fields, Burke overviews this historic underrepresentation and government initiatives to correct this situation. International contributors from Israel to the UK present case studies of barriers and keys to success in this traditionally male-dominated domain, including stereotypes, curriculum changes, student diversity support

and transition programs, and the National Science Foundation's ADVANCE program.

Q183 2007-011939 0-299-22480-5

Science and the university.

Title main entry. Ed. by Paula E. Stephan and Ronald G. Ehrenberg. (Science and technology in society)

U. of Wisconsin Press, ©2007 304 p. \$50.00
Economists and scholars of public policy, as well as a few natural scientists, review recent changes in such matters as how universities fund their scientific research, how the US government allocates funds for research to universities, how corporations interact with universities to fund academic research and then commercialize faculty members' findings, and who conducts scientific research at universities now and who will in the future. There are reasons for concern, they say, and someone should be paying attention.

Q387 2006-934681 1-58603-685-8

Formal ontology in information systems; proceedings.

FOIS (4th: 2006). Ed. by Brandon Bennett and Christiane Fellbaum. (Frontiers in artificial intelligence and applications; v.150)

IOS Press, ©2006 373 p. \$138.00

Ontology, the categorization of reality, has traditionally been a metaphysical discipline practiced by philosophers. But as Bennett (computing, U. of Leeds, UK) and Fellbaum (psychology, Princeton U., US) point out, solving problems of an ontological nature is now also key to data models in computer and information science that represent a set of concepts within a domain and the relationships between those concepts. In two invited talks and 29 selected papers, international scientists examine general ontological issues and domain-specific ontologies in areas including biochemistry, biomedical imaging, and Web information retrieval. A subject index would have been helpful in tracking discussion of such topics as the probabilistic OWL Web Ontology Language.

MATH, COMPUTERS

QA75 2007-930574 978-0-7695-2945-5

Computational science and its applications; proceedings.

International conference on Computational Science and its Applications (2007: Kuala Lumpur, Malaysia) Ed. by Marina L. Gavrilova et al.

Computer Society Press, ©2007 579 p. \$272.00

Gavrilova (U. of Calgary, Canada) and Gervasi (U. of Perugia, Italy) present 82 short, refereed papers from the 2007 International Conference on Computational Science and its Applications.

Papers are at first structured according to the major conference themes: computational methods, algorithms, and applications; high performance technical computing and networks; advanced and emerging applications; and information systems and information technologies. Remaining papers are then organized according to the workshop and technical session topics: advanced security services; advances in web based learning; component based software engineering and software process model; computational geometry and applications; computational intelligence approaches and methods for security engineering; digital content security and management of distributed computing; distributed data and storage system management; data storage devices and systems; hybrid information technology using computational intelligence; integrated analysis and intelligent design technology; intelligent image mining, information services and information technologies; intelligent services and synchronization in mobile multimedia networks; mobile communications; modeling of location management in mobile information systems; molecular simulations, structures, and processes: theories and applications of optimization; pattern recognition and ubiquitous computing; computer graphics and geometric modeling; computational science in education; wireless sensor networks; and virtual reality in scientific applications and learning.

QA76 2007-931647 978-0-7695-2986-8

Peer-to-peer computing; proceedings.

International Conference on Peer-To-Peer Computing (7th: 2007: Galway, Ireland) Ed. by Manfred Hauswirth et al.

Computer Society Press, ©2007 253 p. \$205.00 (pa)

This conference proceedings presents 26 regular papers, six short papers, and five demonstration papers from a September 2007 conference. Papers are grouped in sections on security, searching and query management, routing, overlay networks, data management, services and applications, and overlay construction. Topics examined include completeness estimation of range queries in structured overlays, handling network partitioners and mergers in structured overlay networks, the impact of vertical handovers on cooperative content distribution systems, and distributed automatic file description tuning in peer-to-peer file-sharing systems. Other topics covered include self-stabilization in preference-based networks, the design and evaluation of techniques for route diversity in distributed hash tables, and the effect of virtual media on business

usage of peer-to-peer. There is no subject index.

QA76 2006-033757 978-1-59904-483-5
Ubiquitous and pervasive knowledge and learning management; semantics, social networking and new media to their full potential.

Title main entry. Ed. by Miltiadis Lytras and Ambjorn Naeve.

IGI Publishing, ©2007 324 p. \$99.95

This is the third volume in a series intended by Lytras (U. of Patras, Greece) and Naeve (Royal Institute of Technology, Sweden) to provide the state-of-the-art in knowledge and learning management according to their perception of the key technological enablers that are expected to influence the domain in the coming years. This volume focuses on how mobile and wireless networks, and ubiquitous and pervasive computing in general, support a new generation of knowledge and learning management systems aiming to provide services beyond time or geographical borders. They present 11 papers that discuss "neomillennial" learning styles propagated by wireless handheld devices, lessons learned in mobile education, ubiquitous computing applications in education, using multimedia and virtual reality for web-based collaborative learning on multiple platforms, using emotional intelligence in personalized adaptation, accessing learning content in a mobile systems, a choreographed approach to ubiquitous and pervasive learning, semantic knowledge mining techniques for ubiquitous access media usage analysis, application of knowledge management techniques in manipulating help desk knowledge, and discursive context-aware knowledge and learning management systems.

QA76.5 978-0-7695-2979-0
High-performance interconnects; proceedings.

Symposium on High-Performance Interconnects (15th: 2007: Stanford, CA)
Computer Society Press, ©2007 151 p. \$184.00 (pa)

These proceedings from the symposium of August 2007 describe new hardware and software technologies that can switch, route and process packets sent over high-speed networks. Topics include on-chip networking (dynamic priority-based fast path architecture, layout-accurate design and photonic NoC for DMA communications) switch architecture (backlog-aware schedulers for input queued packet switches, power-aware management, and dynamic bandwidth re-allocation in optical interconnects), support for network security (a worm outbreak detection system and

prototyping for fast and secure switches), routing (a memory-balanced linear pipeline architecture, a rate controlled protocol test network and a low cost device for identifying large flows), performance evaluation (10-gigabit Ethernet protocol stacks in multicore environments, computation and communication overlap in modern interconnects and Mellanox ConnectX InfiniBand architecture with multi-core platforms), and operating system and network interface technology (memory management strategies for data serving and reducing the impact of the memory wall for I/O using cache injection).

QA76.58 2007-929797 978-0-7695-2943-1
Network and parallel computing; proceedings.

Network and Parallel Computing Workshops (2007: Dalian, China) Ed. by Keqiu Li et al.
Computer Society Press, ©2007 1035 p. \$288.00 (pa)

The 176 papers selected for the September 2007 conference are divided into eight workshops on data-driven engineering, network and system security, storage management for ubiquitous computing, performance analysis, parallel and distributed systems, intelligent computing, image processing, and data management. The cutting-edge researchers present a chaos encryption algorithm based on parameter randomly changing, a session-oriented adaptive load balancing algorithm, topology control for wireless sensor networks, an SLA-based admission controller for MPLS networks, and a secure ring signcryption scheme. No subject index is provided.

QA76.59 2007-924652 978-0-7356-2358-3
Microsoft mobile development handbook.

Wigley, Andy et al.
Microsoft Press, ©2007 651 p. \$69.99 (pa)

This handbook provides practical techniques, real-world insights, and code samples for developing applications with the Microsoft .NET Compact Framework 2.0, running on Microsoft Windows CE- and Windows Mobile-powered mobile devices. The book is divided into three sections on mobile application development essentials, solutions for challenges in mobile application development, and a preview of the next versions of Visual Studio and the .NET Compact Framework. The book is for application developers who already have some experience developing applications using the .NET Framework (either the desktop or compact version). Wigley is a founder of a mobile development and consulting company.

QA76.612 2007-009430 978-1-905209-97-2
Trends in constraint programming.

Title main entry. Ed. by Frederic Benhamou et al.

ISTE Ltd., ©2007 408 p. \$190.00

This complement to the proceedings for the 2006 International Conference on Principles and Practice of Constraint Programming includes selected papers from a range of lectures and workshops about gathering, exploiting and unifying ideas shared by operations research, numerical analysis, symbolic computing, scientific computing, artificial intelligence and programming languages. This multidisciplinary field has become a leading technology for modeling and solving real-life combinatorial problems in fields as diverse as production planning and scheduling, product configuration, molecular biology, medical diagnosis, and robotics, and these 27 papers reflect that diversity, covering the past, present and future of constraint programming, constraint modeling and reformulation, including graphing, symmetry in constraint satisfaction problems, interval analysis in constraint propagation and applications, including an interval analysis that produces a guaranteed numerical injectivity test, local search techniques in constraint satisfaction, preferences and soft constraint and constraint programming for graphical applications. Distributed in the US by the Independent Publishers Group.

QA76.75 978-0-7695-2935-6

Requirements engineering; proceedings.

IEEE International Requirements Engineering Conference (15th: 2007: New Delhi, India) Ed. by Alistair Sutcliffe and Pankaj Jalote.

Computer Society Press, ©2007 396 p. \$216.00 (pa)

An October 2007 conference dealt with the challenges that globalization is making on requirements engineering (RE) across organizations and cultures. Papers from the conference are presented here, in sections on visions and innovations, models and processes, collaboration and quality, RE and business alignment, natural language processing meets RE-traceability and quality, RE and globalization, methods and frameworks, specifications and verification, product line engineering, product requirements and prototyping, requirements processes and management, and methods in practice. Some specific areas of investigation include value-based requirements traceability, automated requirements triage, branding and communication goals for content-invasive interactive applications, blind user requirements engineering for mobile services, and consistency checking of conceptual models via model merging.

QA76.76 2006-033754 978-1-59904-216-9
Agile software development quality assurance.

Title main entry. Ed. by Ioannis Stamelos and Panagiotis Sfetsos.

Information Science Reference, ©2007 246 p. \$165.00

Twelve papers define agile methodologies of software development from a software quality assurance perspective, examine how quality is pursued throughout software development, and describe project activities parallel to software configuration management. Topics include requirements specification, handling software quality defects, improving quality by exploiting human dynamics in agile methods, teaching agile quality to software engineers, test-driven development, and lessons learned from agile processes employed by Siemens. The editors are affiliated with Greek universities.

QA76.76 978-0-13-600424-0

Computer security; principles and practice.

Brown, Lawrie.

Prentice Hall, ©2008 798 p. \$94.00 (pa)

Brown (information technology, University of New South Wales-Australian Defense Force Academy) surveys the entire discipline of computer security, covering security threats, technical approaches to the detection and prevention of attacks, software security issues, and management issues. Focusing on core principles, he shows how they unify the field of computer security, and demonstrates their application in real-world systems and networks. He examines alternate design approaches to meeting security requirements, and illuminates standards that are central to current security solutions. The book includes key terms, review questions, and practice problems. An appendix provides programming and hacking projects, laboratory exercises, and writing and reading assignments. The book is for both academic and professional audiences. Co-author William Stallings has won the Best Computer Science and Engineering Textbook award seven times.

QA76.76 2007-905495 978-0-7695-3027-7

Intelligent agent technology; proceedings.

IEEE/WIC/ACM International Conference on Intelligent Agent Technology (2007: Silicon Valley, CA) Ed. by Tsau Young (T.Y.) Lin et al.

Computer Society Press, ©2007 541 p. \$272.00 (pa)

The papers of this proceedings were first presented at the IEEE/WIC/ACM International Conference on Intelligent Agent Technology, held in November 2007, in Silicon Valley, Calif.

and sponsored by the IEEE Computer Society Technical Committee on Intelligent Informatics and the web Intelligence Consortium. Both full-length and short papers are included, with all organized according to session topic. Topics include autonomy-oriented computing, autonomous knowledge and information agents, agent systems modeling and methodology, and distributed problem solving. The contributors carry out research at academic and private institutions worldwide. Author index only.

QA76.76 2007-018289 978-1-932159-64-6

Metrics-driven enterprise software development; effectively meeting evolving business needs.

Datta, Subhajit.

J. Ross Publishing, ©2007 281 p. \$69.95

Practitioner Datta explains how enterprise software is built, rather than how to build it, and how metrics can make a difference. He presents a set of metrics and artifacts to help software engineers make decisions, starting with understanding the basic ideas behind metrics and their applications to software engineering. He describes key themes in software measurements, moving projects into the metrics way, iterative and incremental development, treating requirements as the drivers of software development, performing analysis and design as a way of deciding and measuring, performing implementation, hunting for means of testing and assessment, and taking lessons learned in the initial stages to use the metric way consistently and effectively. Datta offers an extended case study readers can follow to see how all the aspects of metric-based software design work in a real project. Each section has its own set of references.

QA76.76 2007-932998 978-0-7695-2997-4

Semantic computing; proceedings.

International conference on Semantic Computing (2007; Irvine, CA)

Computer Society Press, ©2007 801 p. \$288.00

This volume consists of the proceedings of the International Conference on Semantic Computing (the first IEEE International Conference on Semantic Computing), held in Irvine, California, in September of 2007. Ninety-nine papers, panel discussions, workshop sessions, and keynote speeches are presented by an international group of scientists and researchers, addressing emerging technologies and the latest research and development results in all areas of semantic computing. Topics encompass text understanding and natural language processing, services and software engineering, content-based retrieval

and semantic annotation of multimedia contents, knowledge engineering and data mining, multimedia, audio, and visual semantics, semantic web, modeling services and software engineering, concept-based multimedia mining and retrieval, and multimedia knowledge management and processing. Only an author index is provided.

QA76.87 978-0-471-74108-4

A statistical approach to neural networks for pattern recognition.

Dunne, Robert A. (Wiley series in computational statistics)

Wiley-Interscience, ©2007 268 p. \$90.00

According to the author, the multi-layered perceptron (MLP) model is the most widely-used of the artificial neural network models. This practical guide describes the MLP model and shows how it relates to some other statistical models used for classification tasks. Dunne (Commonwealth Scientific and Industrial Research Organization, New South Wales, Australia) also considers the model's robustness and discusses various extensions and modifications of it. The text is aimed at students and practitioners in mathematics, statistics, computer science, and electrical engineering.

QA76.887 2006-052666 978-1-59693-014-8

Biomolecular computation for bionanotechnology.

Liu, Jian-Qin and Katsunori Shimohara.

Artech House, ©2007 286 p. \$129.00

This multidisciplinary field will surely create another revolution in computing as it matures, and Liu (research, Kobe Advanced ICT Research Center) and Shimohara (information systems, Dashisha U.) provide the first comprehensive resource on its technologies, biomechanical details and theoretical models. They describe the technologies of building a molecular computer from nanobioscience, nanotechnology and nanobioinformatics, the challenging real-world applications, and the role of molecular informatics in representing information that relates to market needs. They describe state-of-the-art molecular biology and nanotechnology, nanobiomachines for information processing and communication, diverse methods of computing by biomoleware from similarly diversified materials, theoretical biomolecular computing, cellular biomolecular computing based on signaling pathways (kinase computing), comparisons of algorithms for biomolecular computing and molecular bioinformatics, and emerging nanobiotechnology in multiple disciplines, including cell communication for engineering purposes.

QA76.9 2007-007283 978-1-59904-618-1

Data mining with ontologies; implementations, findings and frameworks.

Title main entry. Ed. by Hector Oscar Nigro et al.

Information Science Reference, ©2008 289 p. \$180.00

Computer scientists mostly from South America, Europe, and Australia explain how to enhance the process of finding meaningful patterns in large bodies of data by defining prior knowledge about what there is to find. They describe principles and processes for constructing an ontology, and show how the system works with different kinds of ontologies, different kinds of data bases, and in different fields.

QA76.9 2007-015249 978-0-398-07766-2

Document security; protecting physical and electronic content.

Mendell, Ronald L.

C.C. Thomas, ©2007 165 p. \$49.95

Mendell (a member of the International Systems Security Association and the High Technology Crime Investigation Association) aims to provide managers, security professionals, and information workers with an understanding of how to recognize the avenues of compromise for sensitive information in documents, avenues which include not understanding the information conveyed in metadata, not employing robust encryption protection, inadequate monitoring of business channels and subsequent filtering to reduce information leakage, and inadequate erasure of magnetic media to reduce remanence. Other topics addressed include security in Web-facing documents, the theft of digital devices, protection of paper and physical documents, computer document forensics, and document forgeries.

QA76.9 2007-000718 978-1-58488-565-8

Handbook of dynamic system modeling.

Title main entry. Ed. by Paul A. Fishwick.

(Chapman & Hall/CRC computer and information science series)

Chapman & Hall/CRC, ©2007 -- p. \$109.95

Sixty international academics and researchers contribute 37 chapters demonstrating the wide variety of modeling methods available for dynamic systems. Included are pseudocode, diagrams, and methods for representing, simulating, and analyzing models. Coverage includes an introductory overview of general issues, representations, and philosophy of dynamic models; modeling methodologies defined as approaches to the modeling process; executing models on a computer once models have been designed; multiobject and system issues of scale, heterogeneity, and composition;

specific model types characterized by specific visual or text-based grammars; application domains; and case studies using two well-known commercial packages that support dynamic model construction, simulation, and analysis. The text is suitable as a reference guide, or in the classroom as a primary text or secondary reference, for those in mathematics, computer science, science and engineering disciplines.

QA76.9 2006-102280 978-1-56881-303-5

A hitchhiker's guide to virtual reality. (CD-ROM included)

McMenemy, Karen and Stuart Ferguson.

AK Peters Ltd., ©2007 588 p. \$79.00 (pa)

This guide explains the theory, techniques, and technologies behind virtual reality and provides example programs. McMenemy (intelligent systems and control, Queen's U. Belfast, Ireland) and Ferguson (Queen's U. Belfast) bring together all the aspects of graphics, video, audio, and haptics that create virtual reality and describe its aims, to what it can be applied, what elements need to be brought together, how they work, and how theory works in practice. Key overlapping concepts from computer graphics and computer vision are also considered. The CD contains the programs for about 30 projects. For the first section, the authors assume that the reader has knowledge of the vector, coordinate geometry, and has studied science or engineering through the high school level. The second section focuses on programming and assumes familiarity with the C/C++ programming language and that readers have experience writing applications for Windows. The book is aimed at postgraduate students, programmers, research engineers, and scientists.

QA76.9 978-0-8058-5870-9

The human-computer interaction handbook; fundamentals, evolving technologies, and emerging applications, 2d ed.

Title main entry. Ed. by Andrew Sears and Julie A. Jacko. (Human factors and ergonomics)

Lawrence Erlbaum, ©2008 1358 p. \$149.95

The growing interest in human-computer interaction, or HCI, is reflected in the size and breadth of this handbook, which contains 65 chapters by an international team of specialists in fields that include industrial engineering, psychology, human kinetics, information technology, and computer science. Many of the chapters were re-written or updated for the 2d edition. Notable are the 8 chapters on diverse populations, including children, the illiterate, physically disabled, hearing impaired, and older adults. An entire section is devoted to the

development process, with chapters on user experience, task analysis, usability testing, survey design, and technology transfer, among other topics. Two initial sections consider questions concerning humans in HCI and computers in HCI, with a subsequent section devoted to the design of human-computer interactions, including such topics as intercultural user interface, multimedia user interface, adaptive interfaces, and information visualization.

QA76.9 978-1-59693-172-5
Implementing the ISO/IEC 27001 information security management system standard.

Humphreys, Edward. (Artech House computer security series)
Artech House, ©2008 265 p. \$79.00

Standards are updated frequently, and those for information security management are no exception. Consultant Humphreys is uniquely positioned to keep it all straight for you, focusing on issues critical to protecting valuable assets while simultaneously dealing with business risks, regulations and governance, and compliance. He works through the tenets of information security, including risks, jargon, and relation to legislation and regulation, then reviews the family of standards, including the standardization process, evolution of the family, requirements, the risk-based approach, management responsibilities, internal audits, improvements and links to other standards, elements of risk management, implementation and deployment, utilization and maintenance. Humphreys also offers information on standard accreditation and certification. The result is a compact and concise treatment of what could be a very frustrating change from the previous standard.

QA76.9 2007-060350 978-0-8493-9251-1
Testing code security.

Van der Linden, Maura A.
Auerbach Publications, ©2007 303 p. \$79.95
 A software tester for Microsoft explains to novice testers the difference between traditional functional testing and the unique requirements of security testing, the role threat modeling plays, and the root problems behind the main security vulnerabilities. Case studies explain techniques for evaluating vulnerabilities to brute force browsing, buffer overruns, cookie tampering, cross-site scripting, denial of service, format strings, integer overflows, password and spoofing attacks, and SQL injection. The closing chapters provide background material on cryptography, firewalls, OSI network model, proxy servers, TCP/IP, and test case outlining. Distributed in the U.S. by Taylor & Francis.

QA76.9 2006-033567 978-0-470-08512-7
Trustworthy computing; analytical and quantitative engineering evaluation. (CD-ROM included)

Sahinoglu, M.
Wiley-Interscience, ©2007 319 p. \$110.00
 It would seem the title is an oxymoron but author Sahinoglu (computer science, Troy U.) really means it and proves that theory by taking a quantitative approach to advances in reliability and security engineering. He gives readers metrics to quantify risk and mitigate it through risk management. He describes the fundamentals of component and system reliability and reviews the concept of software reliability, then explains software reliability with clustered failure data and stochastic measures to compare the predictive accuracy of failure-count models, quantitative modeling for security risk assessment, stepping rules on software testing, availability modeling using the Sahinoglu-Libby probability distribution function, and reliability block diagramming in complex systems. The result is an extremely well-organized and logical approach to designing reliability into system rather than on top of them.

QA76.9 2007-276398 1-58603-566-5
Understanding coverbal ionic gestures in shape descriptions.

Sowa, Timo. (DISKI; v.294)
AKA, ©2006 276 p. \$66.00

Sowa's dissertation investigates the principles by which gesture and speech express shape-related messages and also presents a computational approach for the interpretation of these "multimodal" expressions. Sowa begins with a comprehensive literature review, including such topics as cognitive models and gesture and gesture in human-computer interaction, then analyzes representations of shape. He then presents his empirical study of multimodal shape descriptions, including means of evaluation, representations of shape for multimodal communication, including the use of extent graphs, processing models for co-verbal shape-related gestures, and prototype and application scenarios. Sowa includes a detailed list of observed gestures. Distributed in the US by IOS Press.

QA221 2007-060769 978-0-8218-4203-4
Approximate approximations.

Maz'ya, Valdimir G. and Gunther Schmidt.
 (Mathematical surveys and monographs; v.141)
American Mathematical Society, ©2007 349 p. \$89.00

Writing for graduate students and researchers with experience in functional analysis and numerical methods, the authors describe applications for new procedures of approximation, most of

which include approximate quasi-interpolation, interpolation, least square approximation, cubature of integral operations and wavelet approximations. These procedures have the one common feature of being accurate without being convergent in a rigorous sense. They begin with quasi-interpolation on uniform lattices and describe methods of estimating error in quasi-interpolation, then describe a variety of basis functions and algorithms for their construction, semi-analytic cubature formulas for integral and pseudodifferential operators of mathematical physics (including harmonic, elastic and diffraction potentials), approximations of the inverse operator of the Cauchy problem (for heat, wave and plate equations), quasi-interpolation and interpolation of Gaussian functions, approximate wavelets, cubature over bounded domains, general grids, scattered data approximate approximations, and non-linear and linear problems with numerical algorithms based upon approximate approximations.

QA278 2007-002534 978-0-470-08147-1
Nonparametric statistics with applications to science and engineering.

Kvam, Paul H. and Brani Vidakovic.
Wiley-Interscience, ©2007 420 p. \$110.00
 Kvam and Vidakovic (industrial and systems engineering and statistics, respectively, Georgia Institute of Technology) focus on the needs of graduate students in engineering, engineering researchers and practitioners who wish to develop their understanding of order statistics, methods of categorical data analysis, nonparametric regression and curve fitting methods along with nonparametric procedures that are becoming increasingly relevant. They include exercise sets, chapter reviews, and a web site with downloadable applications. The authors start with the basics of statistics and Bayesian statistics, then cover order statistics, "goodness of fit," rank tests, relevant designed experiments, categorical data, estimating distribution functions and density, regressions beyond the linear, curve fitting, wavelets, bootstrapping, the Em algorithm, statistical learning, and nonparametric Bayes. They thoughtfully include an index for the computer exercises along with author and subject indices.

QA279 2006-033618 978-0-470-01562-9
Bayes linear statistics; theory and methods.

Goldstein, Michael and David Wooff. (Wiley series in probability and statistics)
John Wiley & Sons, ©2007 508 p. \$160.00
 Bayesian methods combine data with any prior information available from expert knowledge,

with the linear approach providing a quantitative structure for expressing beliefs and systematic methods for adjusting beliefs, given observational data. It has become essential to engineers, computer scientists and a range of social science researchers as well as statisticians. Written for these professionals but accessible enough for graduate students, this covers the foundations of Bayesian linear statistics, including theory, methodology and practical applications. Goldstein and Woolfe (both U. of Durham) explain the features of the approach and turn immediately to expectation, adjusting beliefs, observed adjustment, partial Bayes linear analysis, exchangeable and co-exchange beliefs, population variances, belief comparison, Bayes linear graphical models, applicable matrix algebra, and implementation.

QA403 2006-032725 978-1-905209-31-6
Wavelets and their applications.

Title main entry. Ed. by Michel Misiti et al.
ISTE Ltd., ©2007 330 p. \$180.00
 Intense interest in such applications as image compression, turbulence, human vision, radar and earthquake prediction has led to many advances in this field, which combines signal with image processing, mathematics, physics and electrical engineering. The authors, (mathematics, Ecole Centrale de Lyon, U. of Marne-La-Vallée, Paris 5 U. and engineering, Paris 11 U. respectively) give professionals and students a strong understanding in wavelets, particularly those interested in decomposition and compression. They cover the mathematical framework, wavelet bases and the fast algorithm, wavelet families, the process of finding and designing a wavelet, a short ID illustrated handbook, signal denoising and compression, image processing, the EZW algorithm, and applications ranging from wind gusts to turbulence analysis, eating behavior, biomedical sciences, and online compression of industrial information.

ASTRONOMY

QB51 2007-933370 978-1-58381-316-4
Library and information services in astronomy; proceedings.

Conference on Library and Information Services in Astronomy (5th: 2006: Cambridge, MA) Ed. by Sandra Ricketts et al. (Astronomical society of the Pacific conference series; v.377)
Astronomical Soc./Pacific, ©2007 436 p. \$77.00
 The 37 papers (nine invited) and 34 posters in this volume are drawn from the proceedings of the Fifth Library and Information Services in Astronomy conference, "Common Challenges,

Uncommon Solutions," held in June 2006 in Cambridge, Massachusetts, on the issues facing astronomy librarians around the world. Ricketts (Anglo-Australian Observatory, Sydney, Australia) et al. compile papers by an international group of librarians, astronomers, and information specialists regarding the Virtual Observatory, citation analysis for astronomy, open access, technologies beyond the Astrophysics Data System (ADS) and Google, creativity in libraries, preservation, the history of astronomy and astronomical archives, and e-journals and the changing publishing sector. There is no index.

QB461 2007-008118 978-0-521-85769-7

Introduction to high-energy astrophysics.

Rosswog, Stephan and Marcus Brüggen.
Cambridge U. Pr., ©2007 355 p. \$65.00

The past decade has been an exciting time for high-energy astrophysics, a field vaguely defined as physics revolving around phenomena under the most extreme conditions. In this undergraduate text, Rosswog and Brüggen (instructors of astrophysics at Jacobs U. Bremen, Germany) explain the basics of such topics as special relativity (assuming some familiarity with its ideas), gas and plasma physics, radiation processes for interpreting electromagnetic observations, and extragalactic radio sources. Chapters include equations, illustrations, further reading and Web resources. An overview of recent high-energy instruments is appended, e.g., the AMANDA-II (Antarctic Muon and Neutrino Detector Array) telescope, and NASA's Chandra X-ray Observatory.

QB791 2007-007710 978-1-58488-707-2

An introduction to the physics of interstellar dust.

Krügel, Endrik. (Series in astronomy and astrophysics)

Chapman & Hall/CRC, ©2008 387 p. \$79.95

Although interstellar dust accounts for only one percent of the mass of interstellar matter, it absorbs one-third of the starlight in the Milky Way and re-emits it in the infrared. This dust weakens the visual light and limits our optical view of the universe, and in our plane of the galaxy we cannot see much farther than a few kiloparsec. Krügel (Max Planck Institute for Radioastronomy) gives students and professionals a solid background in working with the concepts and practicalities of space dust, including considering the dielectric permeability, evaluating grain cross sections, dealing with very small and very big particles, using case studies of Mie calculus, determining the structure and composition of dust, calculating dust radiation, placing the behavior of dust

within its environmental contexts, determining polycyclic aromatic hydrocarbons and spectral features, studying reddening and dust models and radiative transport, and recording spectral energy distribution of dusty objects.

PHYSICS

QC20 2007-019905 978-981-270-907-3

Gabor and wavelet frames.

Title main entry. Ed. by Say Song Goh et al. (Lecture notes series, v.10)

World Scientific, ©2007 214 p. \$66.00

Gabor and wavelet analyses have found widespread applications in signal analysis, image processing, and other information-related areas. This book collects tutorial lectures on Gabor and wavelet frames from a six-month program, "Mathematics and Computation in Imaging Science and Information Processing," held at the Institute for Mathematical Sciences, National University of Singapore. The book includes exposition articles by tutorial speakers on the foundations of Gabor analysis, subband filters and wavelet algorithms, and operator-theoretic interpolation of wavelets and frames. It also presents research papers on Gabor analysis. The book will be of interest to graduate students and researchers. Goh is affiliated with the National University of Singapore. There is no subject index.

QC20 978-0976202127

Methods of theoretical physics. (reprint, 1953); 2v.

Morse and Feshbach.

Feshbach Pub, ©2007 2018 p. \$329.00

Feshbach Publishing has had this elegant reprint done by Cambridge University Press in the UK; it shows clearly the high craftsmanship polished by a half millenium of book production. The "Morse & Feshbach" is among the rare physics monographs endorsed by *Books for College Libraries*, and, of course, by every specialized bibliography in this field. The original was published by McGraw-Hill, 1953, in its *International series in pure and applied physics*. The book is a timeless classic. Encomiums can be found in Google together with sources (including the publisher, Mark Feshbach in Minneapolis).

QC174 2007-017047 978-1-58488-884-0

Introduction to quantum control and dynamics.

D'Alessandro, Domenico. (Chapman & Hall/CRC applied mathematics and nonlinear science series)

Chapman & Hall/CRC, ©2008 343 p. \$89.95

D'Alessandro (Iowa State University) introduces the mathematical concepts and fundamental physics behind the analysis and control of quantum dynamics, emphasizing the application

of Lie algebra and Lie group theory. After an explanation of basics of quantum mechanics, he derives a class of models for quantum control systems from fundamental physics, and uses it to describe experimental situations. He then examines the controllability and observability of quantum systems and the related problem of quantum state determination and measurement. He also uses Lie group decompositions as tools to analyze dynamics and to design control algorithms. He also describes various other control methods and discusses topics in quantum information theory. Applications are given in areas such as nuclear magnetic resonance experiments and implementations of quantum information.

QC446 2006-025059 978-1-60021-402-8

New nonlinear optical materials; theoretical research.

Huang, Ji-Ping and K.W. Yu.

Nova Science Publishers, ©2007 177 p. \$89.00

Some of the proposed materials in this field are difficult or impossible to achieve through conventional or naturally occurring materials but are believed to have wide applications in nonlinear switching devices and real-time coherent optical signaling processors and optical limiters. This shows research in the design of nonlinear optical materials through various theoretical techniques, such as first-principle approaches and the Ewald method. Topics include basic theories, colloidal nanocrystals, inhomogeneous metallic films, graded composites, magneti-controlled nonlinear optical materials, electrorheological nanofluids or ferrofluids, and other materials such as organic and polymeric materials and inorganic materials. Appendices include information on theories.

QC880 2006-049293 978-0-691-12181-9

The global circulation of the atmosphere.

Title main entry. Ed. by Tapio Schneider and Adam H. Sobel.

Princeton U. Press, ©2007 385 p. \$65.00

This book is an outgrowth of a three-day conference held at the California Institute of Technology in November 2004 that was intended to summarize current understandings of the mechanisms controlling the global circulation of the atmosphere and to address future research directions. The conference featured 12 lectures, which were then turned into the chapters presented here by Schneider (environmental science and engineering, California Institute of Technology) and Sobel (earth and environmental sciences, Columbia U.). The chapters address theories of baroclinic adjustment and eddy equilibrium, thermal stratification of the

extratropical troposphere, storm track dynamics, eddy-mediated interactions between low latitudes and the extratropics, quasi-equilibrium dynamics of the tropical atmosphere, simple models of ensemble-averaged tropical precipitation and surface wind, dynamical constraints on monsoon circulations, moist dynamics of tropical convection zones in monsoons and global warming, challenges in numerical modeling of tropical circulations, and challenges to the understand of general circulation and abrupt climate change.

CHEMISTRY

QD75 2007-011033 978-0-470-01204-8

Quality assurance in analytical chemistry.

Prichard, Elizabeth and Vicki Barwick.

(Analytical techniques in the sciences)

John Wiley & Sons, ©2007 293 p. \$70.00 (pa)

Two chemists with the British Laboratory of the Government Chemist define laboratory practices for ensuring the quality of analytical results that will meet and exceed international standards and the expectations of customers. The meticulous guide walks through the components of a sampling plan, the process of selecting a suitable analytical methods, and procedures for establishing measurement uncertainty and metrological traceability. Later chapters discuss control charts, proficiency testing schemes, documentation, internal quality audits, and staff responsibilities.

QD79 2007-000600 978-0-8493-4369-8

Thin layer chromatography in chiral separations and analysis.

Title main entry. Ed. by Teresa Kowalska and Joseph Sherma. (Chromatographic science series; 98)

CRC / Taylor & Francis, ©2007 420 p. \$169.95

Kowalska (Department of General Chemistry and Chromatography, University of Silesia, Poland) and Sherma (chemistry, emeritus, Lafayette College) present current work on the theory, capabilities, and applications of thin layer chromatography (TLC) for direct and indirect enantioseparations. The first part of the book examines fundamental principles of chirality and TLC. It describes materials, equipment, procedures, and strategies for the separation, quantification, isolation, and analysis of chiral compounds. The second part of the book evaluates real-world enantioseparations and densitometric analyses. Emphasis is on pharmaceutical applications. With its blend of introductory, background, and advanced experimental material, the book can be used by

researchers, analysts, and teachers with limited to broad experience in TLC and chiral separations.

QD262 2007-011296 978-0-470-10707-2

The synthetic organic chemist's companion.

Pirrung, Michael C.

Wiley-Interscience, ©2007 198 p. \$50.00 (pa)

This accessible reference for organic chemists, laboratory technicians, and students covers synthetic chemistry as it is practiced in research laboratories in academia and industry. The volume is organized to correspond to the phases of experimentation, from the initial search of the literature through cleaning up after the reaction. Drawings and photographs (in b&w and color) accompany the text throughout. Pirrung is affiliated with the U. of California, Riverside.

QD381 978-0-19-852097-9

Macromolecular crystallography; conventional and high-throughput methods.

Title main entry. Ed. by Mark Sanderson and Jane Skelly.

Oxford U. Press, ©2007 281 p. \$130.00

Graduate students, researchers and specialists will be the audience for this resource which describes conventional and high-throughput methods in 17 chapters written or co-written by an international group of specialists. The first two chapters describe the theory and practice that governs classical and high-throughput cloning, expression and purification with discussion of problems of protein expression and folding. Subsequent chapters discuss automation of non-conventional crystallization techniques, in-house macromolecular data collection, and high-throughput crystallographic data collection at synchrotrons. Later chapters consider more specialized issues, including RNA crystallography, virus crystallography, and applications in drug design.

QD415 978-3-527-31444-7

The way of synthesis; evolution of design and methods for natural products.

Hudlicky, Tomas and Josephine W. Reed.
Wiley-VCH, ©2007 1004 p. \$95.00 (pa)

At the center of organic chemistry is the effective synthesis of natural products and other compounds of importance to society. Hudlicky (organic synthesis and biocatalysis, Brock University, Canada) and Reed (formerly of Brock University) present both design and execution strategies for synthesis in a comparative view of several designs for the same targets. After a 60-year overview of the history and evolution of synthesis of natural products, sections on

comparative design cover classics in terpenes and alkaloid synthesis, with an additional section on miscellaneous targets such as palytoxin, brevetoxin B, and indinavir. An outlook of future prospects is also provided, with discussion of various factors influencing organic synthesis. The book's two-color layout is used in molecular diagrams and for quotes from literature, music lyrics, and speeches. Readership for the book includes synthetic chemists at all levels: lecturers and students as well as professionals in industry.

QD453 2006-042090 1-891389-27-0

Molecular physical chemistry for engineers.

Yates, John T. and J. Karl Johnson.

University Science Books, ©2007 482 p. \$86.50

After reviewing basic thermodynamic functions, two University of Pittsburgh professors delve into quantum theory, the Schrodinger equation, the quantized behavior of electrons in molecules, statistical mechanics, and the kinetic theory of gases. The last chapter of the one-semester advanced textbook applies molecular modeling to catalyst design, heat effects in industrial process scale-up, centrifugal gas separation, elastomeric polymers, and lubricant simulation.

QD933 2007-018473 978-0-19-851600-2

Strengthening mechanisms in crystal plasticity.

Argon, A.S. (Oxford series on materials modelling; v.4)

Oxford U. Press, ©2008 404 p. \$85.00

Argon (emeritus, mechanical engineering, MIT) has written a text for advanced graduate students and professionals that usefully presents in one source the various aspects and science behind alloying and work hardening processes. The first two chapters present an overview of crystal symmetry and the line properties of dislocations. Based on this foundation, subsequent chapters describe lattice resistance, solid-solution strengthening, precipitation strengthening, and strain hardening in homogeneous crystals and polycrystals, and include both introductory overviews and practical descriptions of modeling. More advanced chapter topics describe deformation instabilities, polycrystals, flow in metals with nanostructure, and transition to continuum plasticity.

BIOLOGY

QH323 2007-015712 978-0-8493-6475-4

Laboratory biosecurity handbook.Salerno, Reynolds M. and Jennifer Gaudioso.
CRC / Taylor & Francis, ©2007 188 p.
\$99.95

Practitioners Salerno and Gaudioso explain the relations between laboratory biosecurity, international obligations, national regulations and risks of bioterrorism, then explain risk assessment, the components of biosecurity, program management, and recommendations that apply to specific facilities. In appendices they supply vulnerability assessment questionnaires, biosecurity risk assessment methodologies, a comprehensive biosecurity plan template, a sample memorandum of understanding with local law enforcement, standard operating procedures for testing access control systems and a list of US and other biosecurity guidance documents and regulations.

QH324 2007-014582 1-58488-549-1

Pattern discovery in bioinformatics; theory & algorithms.

Parida, Laxmi. (Chapman & Hall/CRC mathematical and computational biology series)

Chapman & Hall/CRC, ©2008 526 p. \$79.95

As in most scientific endeavors, bioinformatics requires more than a manual and a few anecdotes. Parida (no affiliation given) proves that researchers in bioinformatics need algorithmic and statistical expertise and ingenuity. Without using models she explains how to locate modes of regularities in large amounts of biological data, including string patterns, patterned clusters, permutation patterns, topological patterns, partial order patterns, and boolean expressions. She starts with the fundamentals for novices, including basic algorithms and statistics and the characteristics of patterns, then moves on the biopolymers, Bernoulli schemes and Markov, string pattern specifications, algorithms and pattern statistics, motif learning and patterns on meta-data such as permutation patterns and their probabilities, topological motifs, set-theoretic algorithmic tools, expression and partial order motifs.

QH491 978-3-527-40668-5

Biology in space and life on earth; effects of spaceflight on biological systems.Title main entry. Ed. by Enno Brinckmann.
Wiley-VCH, ©2007 277 p. \$160.00

European scientists from various disciplines discuss three dimensions where life and space intersect. One is the research over periods

between 12 and 30 years on plant root physiology and on immune system cells in the microgravity of space vehicles. A second is research on earth into mechanisms affecting the orientation of plants in the gravitational environment that would not have been possible without space-based experiments for comparison. The third dimension is the affect on human bone metabolism and immune system of space flight.

QH601 978-3-527-31507-9

Modern biooxidation; enzymes, reactions and applications.

Title main entry. Ed. by Rolf D. Schmid and Vlada B. Urlacher.

Wiley-VCH, ©2007 299 p. \$175.00

Scientists with backgrounds in pharmaceuticals or chemistry from industry and academia in Europe, the US, and Japan, discuss current methods for turning oxidizing enzymes into tools for their industries. Among the materials and processes they consider are catalytic applications of laccase, the bacterial cytochrome P450 mono-oxygenases, preparing drug metabolites using fungal and bacterial strains, and recycling and substituting NAD(P)H as a CYP cofactor.

QH601 978-3-527-40471-1

Thermal biophysics of membranes.

Heimburg, Thomas.

Wiley-VCH, ©2007 363 p. \$165.00

Heimburg (biophysics, U. of Copenhagen) uses classical thermal physics and physical chemistry to explain current understanding of membranes. In an accessible style suitable for self-study or professional reference as well as the advanced undergraduate or graduate classroom, he covers membrane structure, the composition of biological membranes, thermodynamics, water, lipid melting, phase diagrams, statistical models for lipid melting, lipid-protein interactions

QP514 2006-102979 978-1-4200-4347-1

Biochemistry and molecular biology compendium.

Lundblad, Roger L.

CRC / Taylor & Francis, ©2007 409 p.
\$99.95

This reference for academic and industrial researchers offers a range of practical information not found in more database-oriented resources. Bridging the old school of protein research with the newer field of proteomics, the reference provides an extensive list of acronyms and abbreviations, and a glossary of systems and techniques used in biochemistry, molecular biology, biotechnology, proteomics, genomics, and systems biology. It describes the properties of chemicals commonly used in biochemistry and molecular biology, including those employed in

commercial mixtures, and lists Log P values, water solubility, and molecular weight for selected chemicals. The book gives a detailed listing of protease inhibitors and cocktails, and includes a selection of commonly used analytical procedures. Author information is not given.

QP606 2007-925517 978-1-58829-725-9
PCR primer design.

Title main entry. Ed. by Anton Yuryev.
(Methods in molecular biology; 402)
Humana Press Inc., ©2007 431 p. \$99.50

Contributors in bioinformatics, molecular genetics, and computer science describe basic and specialized approaches for polymerase chain reaction (PCR) primer design. The methods can be used for both genome-scale experiments and for small-scale individual PCR amplifications. Material is in sections on basic principles and software, genome-scale PCR primer design, multiplex PCR primer design, allele-specific PCR, long PCR primer design, and DNA methylation mapping. The book will be useful as a reference for organizations performing whole genome studies, companies designing instruments that utilize PCR, and individual scientists—geneticists, molecular biologists, and molecular geneticists—who routinely use PCR in their research. Yuryev is a genomics researcher in the private sector.

MEDICINE (GENERAL & PUBLIC ASPECTS)

R726 2007-016667 978-1-4129-2605-8
Handbook of physiological research methods in health psychology.

Title main entry. Ed. by Linda J. Luecken and Linda C. Gallo.
Sage Publications, ©2008 461 p. \$125.00

Luecken (psychology, Arizona State University) and Gallo (Center for Behavioral and Community Health Studies, San Diego State University) outline the collection, analysis, and interpretation of physiological measures that are commonly used and broadly relevant to researchers interested in a biopsychosocial model of health and well-being. Coverage encompasses physiological systems and markers of health and disease risk that are pertinent to health psychology and many related disciplines. Written in a jargon free style for readers with little or no previous knowledge of physiological systems or assessment, the book is intended as a primer for those who are new to physiological measurement, including graduate students and researchers studying behavioral medicine assessment, research methods in health psychology, and research methods in health, in departments of psychology, nursing, and public health.

R853 2007-011412 978-1-58488-962-5

Adaptive design theory and implementation using SAS and R.

Chang, Mark. (Chapman & Hall/CRC biostatistics series; 22)
Chapman & Hall/CRC, ©2008 418 p. \$89.95

This work provides approaches for using adaptive design methods in pharmaceutical clinical trials through the application of statistical software such as SAS and R. It covers statistical methods for various adaptive designs such as adaptive group sequential design, adaptive dose-escalation design, adaptive seamless phase II/III trial design, and biomarker-adaptive design. Emphasis is on the relationship among different methods. The book incorporates most current regulatory views as well as discussions of challenges, execution, analysis, and reporting for adaptive designs. It will be of interest to biostatisticians, clinical scientists, and reviewers in regulatory agencies who are engaged in pharmaceutical research and development. Chang is affiliated with a private sector pharmaceutical company.

R855 2006-002076 1-60021-017-1

New developments in nanotechnology research.

Title main entry. Ed. by Eugene V. Dirote.
Nova Science Publishers, ©2007 310 p. \$129.00

This work collects the latest research on nanotechnology, in areas such as new fabrication methods, the development of conducting polymers, organic semiconductors, silicon nanostructures, and nanoimprint lithography. Some specific areas described are surface magnetic properties and magnetoimpedance in metallic glasses for new sensor applications, organic field-effect transistors, and self-assembled synthesis and optical properties of lamellar mesostructured inorganic-organic nanocomposites. Other topics examined include nanoindentation hardness of copper thin films deposited by RF magnetron sputtering on oxidized silicon substrates, size effect on optical properties of metal nanoparticles, and structural changes in metallic nanocluster deposits on substrates with much larger lattice parameters. Editor information is not given.

R857 2007-007400 978-0-8493-7888-1

Biomaterials.

Title main entry. Ed. by Joyce Y. Wong and Joseph D. Bronzino.
CRC / Taylor & Francis, ©2007 -- p. \$89.95

When medical devices must work inside the body, their materials are the most significant aspects of their design. In addition, industries demand that such devices are reliable, economical and compatible with the environment into

which they are placed. These articles provide general overviews of various materials found to be of use in bioengineering and medicine, including ceramics, polymers and synthetic polymers, metals, composites and biodegradable hydrogels. It also covers biomaterials including tissue-derived biomaterials such as collagen, soft and hard tissue replacements, and a new chapter for this edition on controlling and assessing cell-biomaterial interactions at the micro- and nano-scale, especially in tissue engineering. Each article includes references.

R857 2006-022313 978-1-60021-361-8

Trends in biomaterials research.

Title main entry. Ed. by Patrick J. Pannone.
Nova Science Publishers, ©2007 244 p.
\$129.00

This work details new approaches for biomaterial development, in areas such as multi-field bone remodeling, novel strategies for conferring antibacterial properties to bone cement, polyacrylonitrile-based biomaterials for enzyme immobilization, and functionalized magnetic nanoparticles for tissue engineering. There are a total of five chapters, covering design and biofunctionality of plasma-sprayed osteoconductive calcium phosphate coatings for biomedical implants, surface and biological properties of biomaterials using plasma-based technology, mesoporous materials for biomedical applications, modification of collagen for biomedical applications, and osteogenic cultures in the study of cell-biomaterial interactions. Some of the translated papers contain a low level of grammatical errors, but they are still readable.

HEALTH, MEDICINE, PSYCHIATRY

RA440 2007-002042 978-0-7591-0910-0

Handbook for team-based qualitative research.

Title main entry. Ed. by Greg Guest and Kate M. MacQueen.

AltaMira Press, ©2008 292 p. \$90.00

This introduction to team-based qualitative research in the social sciences addresses the logistical, ethical, political, and methodological challenges inherent in team-based research. Contributors are anthropologists and health practitioners with extensive experience in collaborative research. They build on an initial definition of team-based research, using examples from American and international studies, to show how a team-based method affects project preparation and design, data analysis, and the integrity of research findings. They describe methods for enhancing the integrity of research findings throughout all stages of the

research process, from data collection through presentation of results. Guest and MacQueen are both affiliated with Family Health International.

RA1226 2006-039730 978-1-4200-4477-5
Handbook of nuclear, biological, and chemical agent exposures.

Title main entry. Ed. by Jerrold B. Leikin and Robin B. McFee.

CRC / Taylor & Francis, ©2007 730 p.
\$129.95

Compared to the majority of diseases, the approach to nuclear, biological, or chemical agent exposures presents different and unique challenges to the clinician. To aid health care professionals in the diagnosis and treatment of these exposures, Leikin (medical toxicology, Glenbrook Hospital, Glenview, Illinois; Rush Medical College and Northwestern U., Chicago) and McFee (State U. of New York Stony Brook; NYCOM, New York Institute of Technology) offer a text that takes a clinical approach and provides valuable information on five key areas: antidotes, biological agents, chemical agents, laboratory analysis, and radiation substances. Each of these five sections of the text contains an alphabetically arranged series of agent monographs, written by 20 contributing academics, practitioners, and researchers from the U.S., Israel, and the UK.

TECHNOLOGY (GENERAL)

T27 2006-940753 978-1-84376-780-0

Science, technology policy and the diffusion of knowledge; understanding the dynamics of innovation systems in the Asia Pacific.

Title main entry. Ed. by Tim Turpin and V. V. Krishna.

Edward Elgar Publishing, ©2007 452 p.
\$170.00

Turpin (Center for Industry and Innovation Studies, University of Western Sydney, Australia) and Krishna (Center for Studies in Science Policy, Jawaharlal Nehru University, India) present 12 country cases exploring the ways in which national science, technology, and innovation policies are evolving in response to globalization. All of the case studies make use of the national innovation systems (NIS) framework to identify and analyze trends in policy. An overview chapter looks at the region as a whole. Material originated at a 2003 workshop held in Sydney, Australia, sponsored by the Australian international aid agency, AusAID, and UNESCO. The book will be of interest to policy analysts and practitioners concerned with science, technology, and innovation policy. It will also appeal to academics and postgraduate students concerned with innovation and industrial development, as well as scholars and

practitioners engaged in regional development and international business in the Asia-Pacific region.

T55 978-92-1-139120-6

Recommendations on the transport of dangerous goods; model regulations, 15th ed.; 2v.

Title main entry.

United Nations Publications, ©2007 -- p. \$150.00 (pa)

This two-volume guide contains all of the amendments adopted in December 2006, including revisions concerning transport of radioactive material and new regulations concerning classification and labelling of chemicals, among other changes. The material is organized clearly, in outline form, with extensive tables of dangerous materials and their transport regulation. The recommendations are described in detail, including classification, consignment procedures, emergency response, and compliance assurance. Appendixes contain a list of generic and N.O.S. proper shipping names and a glossary of terms. An index of substances and articles concludes Volume One.

T55 2006-021086 978-1-60021-335-9

Trends in hazardous materials research.

Title main entry. Ed. by Edward C. Booking.

Nova Science Publishers, ©2007 230 p. \$129.00

The eight chapters in this collection propose a hydrometallurgical process flowsheet for recovering valuable metals from hazardous plating sludges, explore strategies for removing toxic heavy metals and uranium from hazardous materials, and compare membrane-assisted techniques for removing heavy metals from CCA-treated wood waste. Other topics include control of colloidal particles for soil and groundwater remediation, flammability characteristics of alternative gaseous fuels, and agricultural pesticides poisoning in sub-Saharan Africa. No credentials are cited for the editor and no peer review process is noted.

T58 2007-000151 978-1-84542-661-3

Risk, complexity, and ICT.

Title main entry. Ed. by Ole Hanseth and Claudio Ciborra.

Edward Elgar Publishing, ©2007 217 p. \$110.00

Hanseth (information systems, U. of Oslo, Norway) and the late Ciborra, formerly a professor of information systems at the London School of Economics and Political Science, UK, bring together nine chapters on the increased growth of information and communication technology (ICT) risks. They aim to understand the new complexity of ICT solutions, how it emerges and

evolves, and what kind of risks it generates. After introductory essays on theory, including the relationship of risk management to ICT risk, five cases on projects and systems risks follow, which discuss different complex ICT solutions and illustrate how complexity is the result of integration efforts and types of side effects and risks these integrations create. Contributors work in informatics, information systems, and computer and information science in Europe. The book is intended for researchers, academics, and students interested in information studies and science and technology, as well as ICT practitioners and information systems managers.

T173 2006-103544 978-1-84542-958-4

Patents, inventions and the dynamics of innovation; a multidisciplinary study.

Cullis, Roger.

Edward Elgar Publishing, ©2007 333 p. \$135.00

Cullis (intellectual property research, U. of London) explores the path of innovation in the electrical, electronic, and communications engineering industries. Using data mainly from British Patent Office records, he constructs chronologies that cover 200 years and incorporate such technologies as the incandescent lamp, the telegraph, the transistor, memory chips, personal computers, and software. He describes the constraints posed on each by the existing knowledge, and constructs a black-box model of innovation.

T174 2006-102977 0-8493-7563-0

Handbook of nanoscience, engineering, and technology, 2d ed.

Title main entry. Ed. by William A. Goddard et al. (The Electrical engineering handbook series)

CRC / Taylor & Francis, ©2007 -- p. \$149.95
Goddard (California Institute of Technology) presents a survey of the current state of the field of nanoscience, focusing on the most promising technologies and fastest-growing developments. Overview chapters summarize the latest concepts and research in the field, and discuss the National Nanotechnology Initiative. The rest of the book is organized into sections on molecular and nanoelectronics, molecular electronics devices, manipulation and assembly, and functional structures. This second edition reflects growth in the field since the first edition was published in 2003, and contains new chapters on textiles, nanomanufacturing, spintronics, molecular electronics, aspects of bionanotechnology, and nanoparticles for drug delivery.

ENGINEERING (GENERAL, CIVIL)

TA165 2007-003344 978-1-905209-66-8

Modern sensors handbook.

Title main entry. Ed. by Pavel Ripka and Alois Tipek.

ISTE Ltd., ©2007 518 p. \$270.00

Ripka (electrical engineering, Czech Technical University) and Tipek, a private sector researcher, present the latest principles and properties of new sensor types, concentrating on sensor types used or having the potential to be used in industrial applications. Contributors in process automation, industrial project management, and measurement describe the latest materials and technologies related to pressure, optical, and flow sensors, intelligent sensors and sensor networks, accelerometers and inclinometers, chemical sensors and biosensors, level-position-distance sensors, temperature sensors, solid state gyroscopes and navigation, magnetic sensors, and new technologies and materials. The information presented will help system developers and system integrators make decisions about which sensor type to use in which systems and what behavior might be expected. The book is distributed in the US by the Independent Publishers Group.

TA174 2007-012204 978-1-4200-4765-3

Design engineering; a manual for enhanced creativity.

Eder, W. Ernst and Stanislav.

CRC / Taylor & Francis, ©2008 588 p. \$129.95

Natural talent helps, but it is only part of the entire experience of design engineering. Flying in the face of the concept that a good design engineer is born, not made, this gives professionals and students ways to hone their skills in both practical and abstract ways based on a theory of transformation processes and tangible products with a coordinated theory of design processes. It includes a range of samples and examples from practical engineering, provides a general model of engineering design procedure, and describes a procedure for designing technical processes and systems and formalizes into a procedural model. The result proves that innovation, while thought to be an intuitive subject and unteachable, does have a basis in logic and can be learned.

TA177 2007-017791 978-0-8493-7477-7

Computational economic analysis for engineering and industry.

Badiru, Adedeji B. and Olufemi A. Omitaomu. (Industrial innovation series)

CRC / Taylor & Francis, ©2007 285 p. \$79.95

The interrelationships among engineers, financial experts and managers are becoming increasingly complex and co-dependent. The authors here (both U. of Tennessee) note that about two-thirds of all engineers will spend about two-thirds of their careers as managers and decision-makers, a situation for which they may not have prepared in school. Writing for those professionals and students who have the good fortune to be going to schools that prepare engineers for the real world, they describe the process of finding and analyzing business data that supports engineering projects, covering economic analysis, cost concepts and techniques, economic methods for comparing investment alternatives, asset replacement and retention analysis, depreciation methods, break-even analysis, inflation and taxes, advanced cash-flow analysis, and budgeting and capital allocations. They provide exercises and a software tool for economic evaluation along with a cost benchmarking case study.

TA401 2007-277686 978-0-87849-431-6

Eco-materials processing and design; proceedings.International Symposium on Eco-Materials Processing & Design (8th: 2007: Kitakyushu, Japan) (Materials science forum; v.544-545) *Trans Tech Publications*, ©2007 1101 p. \$362.00 (pa)

Eco-materials go beyond merely being recycled or recyclable. They are created and constructed to support sustainability at all stages of their use, and they are designed to consider local or global ecological situations, materials recycling, environmental protection and energy conservation. These proceedings from the January 2007 symposium include dozens of papers for each general topic such as the use of photocatalysts to control air and water pollution along with deodorization, self-cleaning, power light sources and standards for reactivity; incorporation of end-of-life strategy into materials design; waste materials and the substitution of non-hazardous components for those that are hazardous; the philosophy of manufacturing with environmentally-friendly processes and design, including biomaterials; and energy-related materials and those that promote energy conservation. The editors include keyword and author indices.

TA403 2007-010269 978-0-471-72833-7

Combinatorial materials science.Title main entry. Ed. by Balaji Narasimhan.
Wiley-Interscience, ©2007 233 p. \$100.00

Twenty-five academics and researchers, all but one from the U.S., contribute nine chapters representative of the efforts made by researchers around the world to apply combinatorial science principles to fundamental and technological issues in the design of advanced materials. Coverage includes successful combinatorial materials science experiments, experimental design in high-throughput systems, polymeric discrete libraries for high-throughput materials science, high-throughput screening probes based on multiplexed atomic force microscopy, informatics methods for combinatorial materials science, combinatorial approaches and molecular evolution of homogeneous catalysts, biomaterials informatics, mapping wetting-dewetting transition lines on gradient surface energy substrates, and challenges for combinatorial materials science in the next several decades. Suitable as a resource for scientists, engineers, statisticians, computer scientists, and as a text for graduate-level courses in materials science/engineering, polymer science, chemical engineering, and chemistry.

TA405 978-0-87849-440-8

The mechanical behavior of materials; proceedings; 2v.

International conference on the Mechanical Behavior of Materials (10th: 2007: Busan, Korea) Ed. by S.W. Nam et al. (Key engineering materials; vols. 345-346)

Trans Tech Publications, ©2007 1650 p. \$458.00 (pa)

The 482 papers of this proceedings were first presented at the 10th International Conference on the Mechanical Behavior of Materials, held in Busan, Korea, in May 2007 and organized by the Korean Institute of Metals and the Korean Society of Mechanical Engineers. With scientists participating from 28 countries, these two volumes contain the current research in the field from an international perspective. The papers are grouped into 17 sections, including deformation behavior, fatigue, fracture and fracture mechanics, creep and superplasticity, failure mechanism and analysis, and nanostructured polymers and polymer nanocomposites. Individual paper topics include viscoelastic analysis of adhesively bonded double-lap joint, the mechanical properties of 91% tungsten alloy, and prevention of dicing-induced damage in semiconductor wafers. Both keyword and author indexes are provided.

TA418 2007-013494 978-0-470-02764-6

Computational mesomechanics of composites; numerical analysis of the effect of microstructures of composites on their strength and damage resistance.

Mishnaevsky, Leon.

John Wiley & Sons, ©2007 276 p. \$160.00

To improve the mechanical properties of composite materials at the macrostructure level, researchers must alter those materials' microstructures. Mesomechanics seeks to bridge the gap between the micro and macro models of materials, offering means of assessing and improving materials by assessing the macroscale properties of materials, the microscale physical mechanisms of deformation and damage, and the interaction between microstructural elements. Mishnaevsky (materials science, Technical U. of Denmark) offers a range of methods for analysis of the interrelationships between mechanical properties and microstructures of composite materials as he describes the mesoscale level in the mechanics of materials, modeling damage and failure, analyzing microstructure-strength relationships in composites, using concepts and tools of computational experiments in the mechanics of materials, conducting numerical mesomechanical experiments on deformation and damage, analyzing particle-reinforced composites and particle clustering, interpenetrating phase composites, conducting numerical analyses of damage in fiber reinforced composites, and analyzing micro-macro relationships.

TA418 978-3-527-31664-9

Nanomaterials chemistry; recent developments and new directions.

Title main entry. Ed. by C.N.R. Rao et al.

Wiley-VCH, ©2007 403 p. \$185.00

It is difficult to think of a more fast-paced, fertile or commercial field of research at present, and this collection of 11 papers reflects that being done at the leading edge. This able and timely collection of papers includes materials on current theory, synthesis, properties, characterization and application, with subjects including quantum dots, nanoparticles, nanoporous materials, nanowires, nanotubes and nanoconstructed polymers. Specific topics include recent developments in the synthesis, properties and assemblies of nanocrystals and in tubes and wires, nonaqueous Sol-Gel routes to nanocrystalline metal oxides, growth of nanocrystals in solution, self-assembling peptides, surface plasmon resonance in nanostructured materials, applications of nanostructured hybrid materials for supercapacitors, molecular approaches to organic/polymeric field-effect

transistors; supramolecular approaches to molecular machines, and nanoscale electronic inhomogeneities in complex oxides. The result is a well-balanced treatment of theory and applications.

TA455 978-0-87849-449-1

Electroceramics in Japan; proceedings.

International Electronic Division Meeting of the Ceramic Society of Japan (26th: 2006: Tokyo, Japan) Ed. by Keiichi Katayama et al. (Key engineering materials; v.320: CSJ series; v.15)
Trans Tech Publications, ©2007 251 p. \$185.00 (pa)

For researchers and engineers, this volume presents 58 papers from the 26th Electronics Division Meeting of the Ceramic Society of Japan, held at the Tokyo Institute of Technology in October of 2006. Katayama (Tokai U., Japan) et al. compile papers on ideas and techniques in electroceramics, with emphasis on topics such as dielectrics, piezoelectrics, ferroelectrics, semiconductors, magnetic ceramics, thin films, batteries and cells, memory devices, and optical devices. Contributors are researchers in engineering and other sciences from Asia and Australia. Both subject and author indexes are provided.

TA455 2007-019258 978-1-56990-410-7

Polymer testing.

Title main entry. Ed. by Wolfgang Grellmann and Sabine Seidler. Trans. by Paul I. Anderson. *Hanser Gardner Pub.*, ©2007 674 p. \$99.95

Plastics production has grown at a staggering rate and demands are increasing for meaningful measuring and analysis methods. In a unique approach, these authors describe the significance of characteristic data in the quantification of the relationship between microstructure and macroscopic properties. Along with theoretical matters they give practical advice on lab and field procedures used in the measurement and analysis process, including the preparation of specimens, and cover mechanical properties of polymers, fracture toughness measurements in engineering plastics, testing of physical properties, evaluating stress cracking resistance, non-destructive polymer testing, hybrid methods of diagnosis, testing of composite materials, technological testing methods and testing of microcomponents. The illustrations are very well-chosen.

TA1637 978-0-470-12095-8

Bayesian bounds for parameter estimation and nonlinear filtering/tracking.

Title main entry. Ed. by Harry L. Van Trees and Kristine L. Bell.

Wiley-Interscience, ©2007 951 p. \$111.00

This collection reprints 90 papers, mostly from engineering literature, to illustrate the evolution of Bayesian bounds from the initial work in 1968 to the current state-of-the-art. The lengthy introduction from the editors (George Mason University) develops recursive Bayesian bounds for the state vector of a nonlinear stochastic dynamic system. The papers are grouped into sections on global Bayesian bounds, hybrid Bayesian bounds, constrained Cramer-Rao bounds, nonlinear stochastic dynamic systems, and applications to static parameter estimation problems. The four papers in the last section were published in statistical literature, and deal with the use of Bayesian bounds to study various properties of estimators. No subject index is provided.

TA1640 2007-011314 978-0-471-41570-1
Character recognition systems; a guide for students and practioners.

Title main entry. Ed. by Mohamed Cheriet et al.

Wiley-Interscience, ©2007 326 p. \$100.00

In many cases, computer systems can now convert written language into digital signals faster and more accurately than humans, and sometimes even cheaper than half-starved Malaysian teenagers. But much remains to be done. Cheriet (U. of Quebec), Nawwaf Kharma and Ching U. Suen (both Concordia U., Montreal), and Cheng-Lin Liu (Chinese Academy of Sciences, Beijing) present a textbook that sets out the basic principles and details the current computational methods of computer character recognition. They speak to graduate students, instructors, researchers, and practitioners.

TA1800 2006-103090 978-0-470-09742-7

Fiber optic essentials.

Thyagarajan, K. and Ajoy Ghatak.

Wiley-Interscience, ©2007 242 p. \$80.00

After reviewing the physical principles of light waves, refraction, and reflection, this technical guide introduces propagation through optical fibers, and describes the characteristics that make it important for telecommunications and sensors. Thyagarajan (Indian Institute of Technology) and Ghatak (Disah Academy) then explain the role of lasers, photodetectors, erbium-doped fiber amplifiers, Raman fiber amplifiers, fiber Bragg gratings, couplers, isolators, external modulators, and thin-film

devices in fiber optic communication systems. The mathematical details are kept to a minimum.

MECHANICAL ENGINEERING & MACHINERY

TJ211 2007-014718 978-1-4200-5909-0
Practical and experimental robotics.
 Sahin, Ferat and Pushkin Kachroo.
CRC / Taylor & Francis, ©2008 439 p.
 \$89.95

This volume details the construction, theory, and experiments for different types of robots. Sahin (Rochester Institute of Technology) and Kachroo (electrical and computer engineering, Virginia Tech) address the fundamentals of electrical and mechanical systems, the Basic Stamp Microcontroller, PC interfacing, and advanced topics such as forward and inverse kinematics of an arm robot, dynamics of a mobile robot, and vision control. In addition, they describe types of robots available as kits, such as arm robots, bipeds, hexapods, and robotic submarines, their mechanical construction and electrical control, and how to use and operate them using microcontrollers or software.

ELECTRICAL ENGINEERING, ELECTRONICS, NUCLEAR ENGINEERING

TK2945 978-1-59430-123-0
Lithium mobile power; proceedings.
 International Conference on Lithium Mobile Power (1st: 2007)
Knowledge Press, ©2007 442 p. \$399.00

This collection of PowerPoint presentations and panel discussions provides an interdisciplinary review of significant recent innovations in the lithium-ion battery industry. Emphasis is on the latest breakthroughs in novel electrode and electrolyte materials, system integration, implementation, and commercialization for a variety of mobile and portable lithium battery applications. Contributors are from businesses and organizations including VARTA Microbattery GmbH, the California Institute of Technology, the US Army Research Laboratory, Sandia National Laboratories, and Brookhaven National Laboratory. Some topics explored include safety issues for Li-ion cells, commercial cell evaluation and capacity fade quantification, the impact of power consumption on fuel cell economics, and features and comparison of medium- to high-temperature fuel cells across types and applications. Other topics are advancements in chemical hydride-based fuel cell systems for portable applications, high-energy density batteries enabled by protected lithium metal anodes, and novel non-aqueous liquid electrolytes for lithium-ion batteries. The book is distributed

in the US by William Andrew Publishers.

TK5103 2007-011302 978-0-470-06196-1
Cognitive networks; towards self-aware networks.

Title main entry. Ed. by Qusay H. Mahmoud.
John Wiley & Sons, ©2007 348 p. \$120.00
 Mahmoud (University of Guelph, Canada) collects work describing the main features of cognitive networks, demonstrating that cognitive network design can be applied to any type of network, fixed or wireless. Academic and industry contributors explain why cognitive networks promise better protection against security attacks and network intruders, and look at how such networks will benefit the service operator as well as the consumer. Although a few chapters are more foundational than transitional, most of the chapters move cognitive networks along a transition from theory to practice. Some chapter topics include biologically inspired networking, cross-layer design and optimization in wireless networks, cognitive radio architecture, and the semantic side of cognitive radio. The book is for advanced students, researchers, and practitioners interested in cognitive and wireless networks, pervasive computing, distributed learning, and self-governed networks.

TK5105 2007-060355 978-1-4200-5219-0
Mechanics of user identification and authentication; fundamentals of identity management.

Todorov, Dobromir.
Auerbach Publications, ©2007 728 p. \$79.95
 Based in the UK, Todorov has some 14 years of professional experience in IT, ranging from systems development in assembly language to systems and infrastructure architecture, and working with large customers in a range of industries. He offers a structured and in-depth look at user identification and authentication for security and network professionals. Coverage includes an overview of today's security landscape; the user authentication architecture of UNIX (and derivatives) and Windows NT/2000/2003; upper-level applications and services, such as GSS-API, SSPI, and SASL; and protocols and mechanisms providing user access to the network infrastructure, such as Cisco routers and switches, Remote Access Authentication protocols, IPsec and VPN authentication. The text includes a number of case studies, diagrams, snapshots, and network traffic captures that demonstrate the inner workings of different authentication mechanisms and technologies.

TK5105 2007-922436 978-1-58603-729-1

Ontology and the semantic web.Colomb, Robert M. (Frontiers in artificial intelligence and applications; v.156)
IOS Press, ©2007 258 p. \$131.00

Colomb (School of Information Technology and Electrical Engineering, The University of Queensland, Australia) describes how organizations can increase interoperability by using a certain web ontology language and by following a simple plan that incorporates ideas about how an institutional world operates with what we understand of information systems. He advocates for semantic hegemony, including federated databases and semantic heterogeneity that is the norm. He offers examples of an ontological representation language and other applications, then provides ideas about a number of complex projects involving a web ontology language called "OWL," including subclasses and subproperties, formal upper ontologies, quality, uses of ontology, representation of ontology, predicates, and topic maps. He provides exercises and answers.

TK6575 2007-015687 978-1-891121-56-2

Design of multi-frequency CW radars.

Jankiraman, M.

SciTech Publishing, ©2007 351 p. \$129.00

This work deals with basic theory for design and analysis of low-probability-of-intercept radar systems. Drawing on research he conducted at the International Research Center for Telecommunications and Radar at the Delft University of Technology in the Netherlands, Jankiraman provides design tools needed for the development, design, and analysis of high resolution radar systems for commercial as well as military applications. After a section on basic continuous wave radar theory, he explains how the theory is used in the design of an actual radar example, and then discusses the theory and design of a more complex multifrequency continuous wave radar. Software written in MATLAB and C++ is provided, along with radar simulation software, to guide the reader in calculating radar parameters and in ambiguity function analysis. It is assumed that the reader is familiar with basic digital signal processing, RF system engineering, and probability theory. Technical jargon has been kept to a minimum. The author is a senior member of IEEE.

TK6678 2007-007077 978-0-470-14783-2

Digital television; technology and standards.

Arnold, John et al.

Wiley-Interscience, ©2007 625 p. \$130.00

Arnold, Frater, and Pickering (information technology and electrical engineering, Australian Defence Academy, U. of New South Wales) provide a textbook on the technology and standards of digital television, covering the basic techniques used in video and audio coding, and systems. The description of standards covers the North-American Advanced Television System Committee and the European Digital Video Broadcasting. The coding of digital video signals using the MPEG-2 standard to produce a compressed digital video bit stream is described first, followed by the coding and compression of digital audio, including methods used by MPEG-1 and MPEG-2 standards and the Dolby AC-3 system. The final part addresses the modulation of digital television services for transmission, the system protocols for multiplexing, timing, and control, and the other components of a digital television services, including closed captioning, subtitling, and teletext. The book is meant for professionals, and undergraduate and graduate students in electrical engineering and computer science.

TK7871 978-0-470-08491-5

Reflectarray antennas.

Huang, John and José A. Encinar.

Wiley-Interscience, ©2008 216 p. \$99.95

Huang (Jet Propulsion Laboratory, California Institute of Technology) and Encinar (electromagnetism and circuit theory, Universidad Politécnica de Madrid, Spain) introduce the history and technical aspects of reflectarray antennas, covering configuration, advantages and drawbacks with respect to other antennas, operating principles, antenna analysis techniques, practical design methods, broadband techniques, and dual-band techniques. A chapter on recent and future applications describes projects including inflatable/thin-membrane reflectarrays, contoured beam reflectarrays for space applications, folded compact reflectarrays, and multi-beam reflectarrays. The book is illustrated with b&w photos and drawings. It will be useful as a reference for electrical engineers, and for graduate students studying antenna engineering and electromagnetics.

TK7871 978-3-527-40331-8

Wide bandgap light emitting materials and devices.

Title main entry. Ed. by Gertrude F. Neumark et al.

Wiley-VCH, ©2007 214 p. \$160.00

The five chapters of this collection describe recent research in the area, with attention to applications. Xian-An Cao of the GE global research center in New York writes on the new developments in the use of III-nitrides as semiconductor alloys in one of three articles devoted to nitride emitters. The final two chapters discuss the wide bandgap compounds ZnSeTe alloys and ZnO. Future applications in optical circuit elements and the boosting output power of LEDs are described, and the chapter on the optical properties of ZnO discusses methods for measuring the index of refraction, among other issues. The contributors are physicists in the USA and the UK.

TK7874 2007-015557 978-0-471-71919-9

Microelectronic applications of chemical mechanical planarization.

Title main entry. Ed. by Yuzhuo Li.

Wiley-Interscience, ©2008 734 p. \$130.00

Specialists in the U.S., Germany, and Korea contributed the 21 chapters of this collection, which describes the use of chemical mechanical planarization (CMP) for integrated circuit (IC) planarization, in the fabrication of microelectromechanical systems (MEMS), and in computer hard drive manufacturing. Li (chemistry, Clarkson U, Potsdam, New York) contributes an introductory chapter on CMP technology. Other chapters describe processing tools, tribometry, chemical components of the metal CMP slurries, tungsten applications, and post-CMP cleaning. Case studies are frequently cited, making this a useful source for professionals as well as researchers and graduate students.

TK7882 978-1-59693-184-8

Multimodal surveillance; sensors, algorithms, and systems.

Title main entry. Ed. by Zhigang Zhu and Thomas S. Huang.

Artech House, ©2007 428 p. \$139.00

Not just one mode will keep them out, it appears, and to be really sure you have a solid

surveillance system you must use a range of sensors, systems and algorithms to be fully operational. Zhu (computer science, City U. of New York), Huang (electrical and computer engineering, U. of Illinois at Champagne-Urbana) and their contributors take systems designers through a range of three-dimensional, scene and automatic modeling, high-end sensors for long-range modeling or that requiring particular sensitivity, and low-cost sensor solutions. This combination design guide and handbook covers multimodal sensors and sensing approaches, multimodal fusion algorithms, and multimodal systems and issues for special applications, including a multimodal "workbench" for automatic surveillance. The illustrations are particularly helpful and many illustrate real-world applications.

CHEMICAL TECHNOLOGY

TP157 2006-036208 978-0-470-09770-0

Chemical reactor design and control.

Luyben, William L.

Wiley-Interscience, ©2007 419 p. \$115.00

With coverage of classical reactors, including continuous stirred tank (CSTR), batch and tubular plug flow systems and emphasis on temperature control and steady-state design on the dynamics and stability of reactors, Luyben (chemical engineering, Lehigh U.) describes how to use process simulator software for both design and control. He gives the basics of reactors, including the fundamentals of kinetics and reaction equilibrium and types and fundamental properties of reactors, steady-state design of CSTR systems and their control, control of batch reactors, steady-state design of tubular reactor systems and their control, heat exchanger reactor systems, and control of special types of industrial reactors, including polymerization reactors, fluidized catalytic crackers, gasifiers, pulp digesters, slurry reactors, microscale reactors and biochemical reactors.

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