Sci-Tech News

Volume 64 | Issue 3 Article 33

2010

Sci-Tech Book News Reviews

Susan Fingerman
Johns Hopkins University Applied Physics Laboratory, susan.fingerman@jhuapl.edu

Sci-Tech Book News Reviews Susan Fingerman, Selector

The following section consists of 100 book reviews selected from *Sci-Tech Book News*, reprinted with the permission of Book News Inc. This review journal is published four times a year, each issue reviewing over 2,000 new titles in the physical and biological sciences, mathematics, engineering, computer science, technology, and agriculture. For a sample issue and subscription information, contact Book News Inc. at 5739 NE Sumner Street, Portland, OR 97218. Phone: (503)281-9230; Fax: (503)287-4485; E-mail: booknews@booknews.com.

ETHICS

BJ59 2009-025606 978-1-60566-952-6

Technoethics and the evolving knowledge society; ethical issues in technological design, research, development, and innovation.

Title main entry. Ed. by Rocci Luppicini.

Information Science Reference, ©2010 305 p. $180.00

Luppicini (University of Ottawa, Canada) combines theoretical and philosophical perspectives, literature reviews, case studies, and practical tools related technoethics, an emerging interdisciplinary field concerned with ethical aspects of technology. The book also examines social policies in response to issues generated by technology, such as debates on the responsible use of technology, and explains how to use technoethics as part of a decision making framework in technology development and design, research, innovation, and application. A final chapter presents interviews with nine academics in philosophy, computer science, and sociology. A glossary is included. The audience for the book includes undergraduate and graduate students studying ethics and technology within the social sciences, in addition to technology designers, information specialists, researchers, engineers, managers, and administrators.

GEOGRAPHY

G70 2009-025801 978-1-4200-6805-4

CAD and GIS integration.

Title main entry. Ed. by Hassan A. Karimi and Burcu Akinci.

CRC Press, ©2010 235 p. $89.95

Though computer aided design (CAD) and geospatial information systems (GIS) were developed separately and both can boast decades of independent use, they increasingly have been used together in such applications as engineering tasks as design, construction, and asset management throughout the life-cycle of an infrastructure or facility. Contributors mostly from the University of Pittsburgh, explain principles and procedures that have been developed to integrate GIS into computer-integrated design (CAD) technology. Assuming readers are experienced in one or the other but not both, they begin by reviewing each and its history and current status. Integration itself they address in such terms as rationale and challenges, interoperable methodologies and techniques from the Open Geospatial Consortium perspective, issues for seamless navigation between indoor and outdoor environments, semantics, and ontologies.

ANTHROPOLOGY

GN74 978-1-4398-1133-7

Computer-aided forensic facial comparison; scientific and technical aspects. (CD-ROM included)

Title main entry. Ed. by Martin Paul Evison and Richard W. Vorder Bruegge.

CRC Press, ©2010 183 p. $159.95

In a research project funded by Sheffield University Enterprises Limited, contributors from physical, mathematical, computer, and forensic sciences describe some recent approaches to teach computers to tell which faces are the same and which are different. Their topics include image quality and accuracy in three three-dimensional scanners, a large database sample of three-dimensional facial images and measurement, the effect of three-dimensional rotation on landmark visibility, the influence of lens distortion and perspective error, generating values for missing data, admissibility, and problems and prospects.

ECONOMICS

HC79 2009-045946 978-1-60876-671-0

Information and communication technologies, policies, and practices.

Title main entry. Ed. by Almas Heshmati and Sun Peng. (Media and communications; technologies policies and

challenges)
Nova Science Publishers, ©2010 310 p. $89.00
Government officials and business executives, mostly from across Asia but also Uzbekistan, Morocco, and Columbia ponder not the nuts and bolts of the technology, but its role in the spheres of business and governments, to the extent that they are different any more. Among the topics are industrial policy of information technology in Vietnam, the effect of main telecommunications indicators on the inflow of foreign direct investment, the relationship between efficiency and ownership structure as illustrated in China's listed information and communication technology companies, a comparison of efficiency of mobile operators in South America, the impact of information technology on the efficiency of postal services in Indonesia, and impacts of regulatory policy factors on industrial technology development in Nepal.

SCIENCE (GENERAL)

Q127 2009-041623 978-0-313-36234-7
Toxic mix?; a handbook of science and politics.
Foerstel, Herbert N.
Greenwood Press, ©2010 240 p. $85.00
Foerstel, a retired librarian and author of several books on the intersection of government control, librarianship, and science, covers the history of political influence and interference with scientific research in the United States from the FDR era to today. Writing for general readers, he discusses topics such as the debates over stem cell research, sex education and evolution, as well as exploring the intense governmental involvement in nuclear power and space science. In another chapter he demonstrates how the issue of climate change has spread beyond the realm of science into a highly politicized discussion. The book contains a useful appendix describing private organizations involved in science and politics, but the index is mostly limited to names of individuals.

Q180 2009-936761 978-1-84844-330-3
European science and technology policy; towards integration or fragmentation?
Title main entry. Ed. by Henri Delanghe et al.
Edward Elgar Publishing, ©2009 370 p. $150.00
Once the Lisbon Treaty enters into force, the European Research Area will create an open market for research, technology, and knowledge beneath the umbrella a Europe-wide policy. A few academics, but mostly business executives and consultants describe its history, analyze some of its underlying assumptions, assess its achievements, and project its future. Their topics include intergovernmental cooperation in the making of European research, the place of the Area in the history of Community policy-making, the returns to public research funding, the role of networks, human resources in science and technology, the leveling off of the integration of European technology, and the Area as an industrial policy tool.

Q183 2009-018535 978-1-4200-6980-8
Scientific data management; challenges, technology, and deployment.
Title main entry. Ed. by Arie Shoshani and Doron Rotem. (Chapman & Hall/CRC computational science series)
CRC Press, ©2010 534 p. $89.95
Eighty-one international researchers contribute 13 chapters examining five main aspects and techniques of managing data during scientific exploration processes that scientists typically encounter, from the data generation to the data analysis phases. Presenting many important state-of-the-art developments in scientific data management, the text covers storage technology and efficient storage access; data transfer and scheduling; specialized retrieval techniques and database systems; data analysis, integration, and visualization methods; and scientific process management. Suitable as a reference book for research scientists and developers of scientific software who need cutting-edge technologies for managing and analyzing data arising from their work; as a textbook for graduate and upper-level courses on scientific data management; and as supplemental material in courses dealing with advanced database systems, advanced I/O techniques, data analysis and visualization, data streams management, scientific workflows, and metadata and provenance management.

Q342 2009-025980 978-0-470-28719-4
Evolving intelligent systems; methodology and applications.
Title main entry. Ed. by Plamen Angelov et al.
Wiley-IEEE Press, ©2010 444 p. $115.00
Evolving intelligent systems are based on fuzzy and neuro-fuzzy techniques that allow for the structure and the functionality of a computational intelligence system to develop and evolve from incoming data. Editors Angelov (communication systems, Lancaster U.), Filev (intelligent control & information systems, Ford Research & Advanced Engineering, US) and Kasabov

(computer and information sciences, Auckland U. of Technology, New Zealand) present 17 papers focusing on the state-of-the-art in this emerging area of computational intelligence, which puts the emphasis on lifetime self-adaptation and on the online process of evolving the system's structure and parameters. They are presented in two sections, examining in turn the methodology of designing of fuzzy and neuro-fuzzy evolving systems and application aspects of the evolving concept.

MATH, COMPUTERS

QA76 2009-046730 978-1-61520-727-5
Advanced applications and structures in XML processing; label streams, semantics utilization and data query technologies.
Title main entry. Ed. by Changqing Li and Tok-Wang Ling.
Information Science Reference, ©2010 476 p. $180.00
This volume features a collection of articles on advanced topics in XML Structures. The authors of eighteen chapters include international graduate students and professors from research universities, as well as IT professionals from companies such as Oracle and Facebook. Written for advanced XML users and graduate students topics covered include XML Data Management, XML Index and Query, XML Stream Processing, Publish/Subscribe, P2P, XML Query Translation and Data Integration, and XML Semantics and Advanced Applications. Each chapter includes an abstract, introduction, conclusion, and references as well as charts, figures, and graphs.

QA76 978-1-59693-434-4
Human-centered information fusion.
Hall, David L. and John M. Jordan.
Artech House, ©2010 295 p. $109.00
Hall and Jordan (information sciences and technology and supply chain and information systems, Pennsylvania State U.) explore human-centered trends in information fusion that are valuable to military applications, analysis of health hazards and cyberattacks, and identifying and characterizing human networks, including physical communications and virtual relationships, such as the locations, identity, and interactions of individuals and groups, and two new sources of information: human observations and web-based information. They examine traditional sensing resources, dynamic communities of human observers, and resources such as archived sensor data, blogs, reports, and dynamic reports from citizen reporters online; calibration issues; the new role of the analyst; and the concept of ad hoc distributed collaboration on analysis and problem solving through virtual world technologies. They also consider hybrid computing, the use of advanced visualization for pattern recognition, the use of sound for understanding data, the concept of intelligent preparation of the battlefield and its adaptation, and information markets.

QA76 2009-047588 978-1-61520-649-0
Model driven architecture for reverse engineering technologies; strategic directions and system evolution.
Favre, Liliana.
Engineering Science Reference, ©2010 443 p. $180.00
This book encourages software professionals to explore the use of model driven architecture (MDA)-based processes for innovative projects combining reverse engineering and software evolution. After covering basics of reverse engineering and MDA, the book describes foundations of metamodeling and mapping of meta-object-facility (MOF)-based processes. Section 3, the core of the book, sets out techniques underlying MDA-based reverse engineering and shows how to adapt techniques such as design patterns and pattern recovery in a way that fits with MDA. About 60 pages of appendices cover platform-specific metamodels and language metamodels, OCL and NEREUS, and design pattern metamodels. The book is written for researchers, advanced students, and professionals. It can be used in an undergraduate course to teach reverse engineering as an integral part of software design processes. A general knowledge of object oriented modeling is assumed. Favre teaches computer science at the Universidad Nacional del Centro de la Provincia de Buenos Aires, Argentina.

QA76 2009-047893 978-1-60566-717-1
Strategic advancements in utilizing data mining and warehousing technologies; new concepts and developments.
Title main entry. Ed. by David Taniar and Laura Irina Rusu.
Information Science Reference, ©2010 408 p. $180.00
International contributors present new developments in the areas of data warehousing and data mining. An introduction gives an overview of data warehousing and its importance in providing support for the decision making process, and also discusses data mining tools. Some specific topics covered in the rest of the book are seismological data warehousing and mining, algebraic and graphic languages for OLAP

manipulations, and medical document clustering using ontology-based term similarity measures. Other subjects include an integrated framework for fuzzy classification and analysis of gene expression data, computing join aggregates over private tables, and bagging probit models for unbalanced classification. Taniar is affiliated with Monash University, Australia. Rusu is affiliated with La Trobe University, Australia.

QA76.5913 2009-033995 978-0-470-46495-3
Semantic computing.
Title main entry. Ed. by Phillip Sheu et al.
Wiley-IEEE Press, ©2010 531 p. $120.00
The use of semantics to improve the management of content in computer realms is explored by researchers from disparate fields, among them natural language processing, software engineering, multimedia, semantic Web, and semantic services. The rationale for the anthology is that the contributors are grappling with the same underlying issues as they pursue superficially very different problems. They cover semantic analysis, semantic languages and integration, semantic applications, and semantic interface. Among specific topics are what computers need to know about verbs, visual ontology construction and concept detection for multimedia indexing and retrieval, semantics of software modeling, social and expert research in online communities, phase coherence in conceptual spaces for conversational agents, and from semantic objects to structured natural language.

QA76.5915 2009-050069 978-1-61520-753-4
Strategic pervasive computing applications; emerging trends.
Title main entry. Ed. by Varuna Godara.
Information Science Reference, ©2010 333 p. $180.00
Contributors from India, the US, Taiwan, and Australia overview developments in pervasive computing technology, consider security concerns in pervasive computing, and look at innovative applications and strategic trends in the field. Focus is on pervasive context-aware applications with the potential to develop into context-responsive applications in different application areas. Some application areas examined include healthcare and education. Trends explored include gaze tracking, knowledge super corridors, magic pointing, and automatic question set generation, along with tele-immersive psychotherapy, wearable computers, smart homes, and wireless cities. Godara is CEO of Sydney College of Management, Australia.

QA76.76 2009-036021 978-1-61520-763-3
Quality and communicability for interactive hypermedia systems; concepts and practices for design.
Title main entry. Ed. by Francisco V. Cipolla-Ficarra.
Information Science Reference, ©2010 303 p. $180.00
A hypermedia system is a multimedia system in which related items of information are connected and can be presented together. An example of a partial hypermedia system is the World Wide Web since it supports graphical hyperlinks and links to sound and video files. Building hypermedia systems requires the input of software and computer science engineering, human computer interaction, and usability engineering. This book encourages the addition of social sciences professionals, and discusses their place in system design to increase the usability and communicability of these systems. The secondary goal of the book is to present articles on the current state of new hypermedia technologies and create a repository of on- and off-line multimedia/hypermedia. Eleven chapters are enclosed, covering subjects like communicability in educational simulations, usability of web content, and injecting content into computer games. Includes an annex of descriptive statistics for studies and an additional bibliography for more reading on the subject. Cipolla-Ficarra is a professor, researcher, and writer with a PhD in Multimedia. The chapter contributors are researchers and educators from around the world.

QA76.87 2009042998 978-1-60566-902-1
Discoveries and breakthroughs in cognitive informatics and natural intelligence.
Title main entry. Ed. by Yingxu Wang.
Information Science Reference, ©2010 577 p. $180.00
International contributors shed light on emerging areas of cognitive informatics. The book begins by offering a computational cognitive model of the brain and describing a cognitive approach to the mechanism of intelligence. Subsequent chapters investigate topics including cognitive properties of human factors and error models in engineering and socialization, user-centered interactive data mining, denotational semantics of real-time process algebra, and unifying rough set analysis and formal concept analysis based on a logic approach to granular computing. Wang directs the International Center for Cognitive Informatics, and the Theoretical and Empirical Software Engineering Research Center, at the University of Calgary, Canada.

QA76.9 2009-019505 978-1-60566-414-9
Collaborative computer security and trust management.
Title main entry. Ed. by Jean-Marc Seigneur and Adam Slagell.
Information Science Reference, ©2010 297 p. $270.00
International contributors look at technical, social, and regulatory challenges related to computer security when governments and businesses wok collaboratively. Some specific topics include collaborative instruction and malware detection, sharing computer and network logs, trust-aware recommender systems for open and mobile virtual communities, and wireless sensor network security. Other subjects include trust-privacy tradeoffs in distributed computing, and developing trust and relational synergy in international e-collaborative groups. The book is for practitioners, researchers, and academics concerned with information security. Seigneur is affiliated with the University of Geneva, Switzerland. Slagell is affiliated with the National Center for Supercomputing Applications, University of Illinois.

QA76.9 2009-035155 978-1-60566-908-3
Dynamic and advanced data mining for progressing technological development; innovations and systemic approaches.
Title main entry. Ed. by A.B.M. Shawkat Ali and Yang Xiang.
Information Science Reference, ©2010 497 p. $180.00
This introduction to basic methodology, current research, and advanced techniques of data mining will be useful as a handbook for researchers, practitioners, and technologists. It can also serve as text for a one-semester course for advanced students. Contributors from around the world shed light on areas of research such as data mining techniques for web personalization, concept-based mining models, intrusion detection using machine learning, pattern discovery from biological data, and fuzzy clustering based image segmentation algorithms. The book is illustrated with b&w screenshots. Ali is affiliated with the IEEE International Workshop on Data Mining and Artificial Intelligence. Xiang is affiliated with Central Queensland University, Australia.

QA76.9 2009-038022 978-1-4398-0367-7
Fundamentals of grid computing; theory, algorithms, and technologies.
Title main entry. Ed. by Frédéric Magoulès. (Chapman & Hall/CRC numerical analysis and scientific computing)
CRC Press, ©2010 298 p. $89.95
This book examines the incorporation of semantic web and workflow into the grid and grid services. The main topics covered include resource sharing, data replication, data management, fault tolerance, scheduling, broadcasting, and load balancing algorithms. The book's nine chapters are followed by two appendices introducing two types of software written in Java. The first software deals with the implementation of some replication strategies for data replication in the grid. The second software deals with the implementation of a simulator for distributed scheduling in grid environments. These open source software resources allow the reader to become familiar with the grid technology covered in the previous chapters. A glossary of terms is included. There is no subject index. The editor is affiliated with the Applied Mathematics and Systems Laboratory at Ecole Centrale Paris, France.

QA76.9 2009-043226 978-1-4200-7854-1
Information security management; concepts and practice.
Raggad, Bel G.
CRC Press, ©2010 832 p. $79.95
This resource is for IT managers and all types of security managers, as well as students in business, computing, IT, or telecommunications programs. After an introduction on information security and management concepts, material is organized according to six security life cycle phases, from security planning and analysis though design, implementation, review, and continual security. The book explains the ISO 17799 and 27001 standards and walks through steps of conducting a nominal security audit that conforms to the standards. Learning features include review questions, real-world examples, and hypothetical case activities. For students who have taken previous courses in information security concepts, security risk assessment, and information security standards, the book can be used as a text for a capstone course. Raggad teaches IT security at Pace University.

QA76.9 2009-046476 978-1-60566-904-5
Principle advancements in database management technologies; new applications and frameworks.
Title main entry. Ed. by Keng Siau and John Erickson.
Information Science Reference, ©2010 441 p. $180.00
International contributors present the latest work in database management, systems analysis and design, open systems development, design science, and software engineering. Some specific topics include the use of ontology for data

mining with incomplete data, using graphics to improve understanding of conceptual models, and the impact of ideology on the organizational adoption of open source software. Other subjects examined include a multiple-bits watermark for relational data, evaluation of MDE tools from a metamodeling perspective, and enterprise-wide e-business architecture creation. The book is for researches, graduate students, and practitioners. Siau is affiliated with the University of Nebraska-Lincoln. Erickson is affiliated with the University of Nebraska-Omaha.

QA76.9 978-1-60456-883-7
Soft computing; new research.
Title main entry. Ed. by Alessia J. Giordano and Ginevra E. Costa.
Nova Science Publishers, ©2009 399 p. $139.00
Recent international research on soft computing is collected here. The techniques described draw on computer science, artificial intelligence, machine learning, and engineering, and are used for modeling and analyzing complex phenomena. Some topics include the TreeGRG hierarchical classifier, collaborative semiconductor yield forecasting with a fuzzy-neural expert system, and developing soft computing approaches for flood level forecasting. Other topics are efficient watermark retrieval through Hopfield Neural networks, general regression neural networks of forecasted tsunami wave height, and robust layout synthesis of MEMS using a constrained adaptive differential evolution algorithm. B&w and a few color images are included. Information on the editors is not given

QA76.9 2009-048856 978-1-4200-8976-9
Temporal data mining.
Mitsa, Theophano. (Chapman & Hall/CRC data mining and knowledge discovery series)
CRC/Taylor & Francis, ©2010 373 p. $79.95
This volume covers the theory of temporal data mining and applications in medicine and bioinformatics, business and industrial areas, web usage mining, and spatiotemporal data mining. Mitsa explains basic and advanced concepts and methods in incorporation of temporality in databases, temporal data representation and similarity computation, temporal data classification and clustering, temporal pattern discovery, and prediction. The book is aimed at those new and experienced in data mining, including graduate students, researchers, financial and geospatial data analysts, business managers, and web developers.

QA278 2010-006620 978-1-4200-7287-7
Handbook of spatial statistics.
Title main entry. Ed. by Alan E. Gelfand et al. (Chapman & Hall/CRC handbooks of modern statistical methods)
CRC Press, ©2010 607 p. $99.95
For many years, the statistical analysis of space was considered merely an application in such areas as mining, forestry, and agriculture, but over the past couple of decades, people have been gathering up methods and concepts from the scattered examples and finding enough common features to constitute a specialty within statistics. Conferences and textbooks soon followed, and here is a comprehensive account of the whole field intended as either an introduction or a reference. The three major branches—continuous spatial variation, discrete spatial variation, and spatial point patterns—provide the core of the work, but other sections cover the history, spatio-temporal processes, and additional topics such as multi-variate spatial process models and spatial aggregation and the ecological fallacy.

QA402 978-3-11-022181-7
Stability analysis of impulsive functional differential equations.
Stamova, Ivanka. (de Gruyter expositions in mathematics; 52)
De Gruyter, ©2009 230 p. $155.00
The qualitative theory of impulsive functional differential equations, which are a natural generalization of impulsive ordinary differential equations (without delay) and of functional differential equations (without impulses), is currently undergoing rapid development, with many results on the stability and boundedness of their solutions being obtained. In this monograph, Stamova (mathematics, Bourgas Free U., Bulgaria) aims to provide a systematic account of these developments. She presents the main results on stability theory for impulsive functional differential equations by means of the second method of Lyapunov, provides a unified general structure applicable to study the dynamics of mathematical models based on such equations, and shows manifestations of the Lyapunov-Razumikhin method by demonstrating how it can be applied to investigate stability and boundedness results of the equations. She also addresses applications to population models, neural networks, and economic models.

PHYSICS

QC20 2009-041376 978-1-61520-666-7

Particle swarm optimization and intelligence; advances and applications.
Parsopoulos, Konstantinos E. and Michael N. Vrahatis.
Information Science Reference, ©2010 310 p. $270.00
While this book is not about numerical optimization or evolutionary and swarm intelligence algorithms in general, it does provide a rough sketch of established theoretical analyses and their impact on the established variants of the algorithms. The book presents recent significant developments in particle swarm optimization (PSO) for novice and experienced PSO users and researchers. The first part of the book offers an overview of optimization, evolutionary computation, and swarm intelligence, reviews the development of PSO, and covers theoretical derivations. The second section describes real-world PSO applications. Appendices provide test problems and an example implementation of PSO in MATLAB. A list of web resources is also provided. Parsopoulos is affiliated with the University of Ioannina, Greece. Vrahatis is affiliated with the University of Patras, Greece.

QC174 2009-280682 978-981-281-887-4
Thermal quantum field theory; algebraic aspects and applications.
Title main entry. Ed. by Faqir C. Khanna et al.
World Scientific, ©2009 461 p. $104.00
With symmetry as the basic tool, this book coherently presents foundations and recent developments with regard to finite temperature quantum field theory and its applications to physical problems. Coverage begins with elements of thermodynamics and of statistical mechanics, followed by partition function and path integral, and zero temperature interacting fields. Subsequent chapters address various aspects of thermal fields, applications to quantum optics, compactified fields, and applications to open systems. The four authors are affiliated as follows: Faqir C. Khanna (U. of Alberta, Canada), Adolfo P.C. Malbouisson (Centro Brasileiro de Pesquisas Fisicas, Brazil), Jorge M.C. Malbouisson (Universidade Federal de Bahia, Brazil), and Ademir E. Santana (Universidade de Brasilia, Brazil).

QC176 978-1-4398-0896-2
Laser cooling of solids.
Petrushkin, S.V. and V.V. Samartsev. (Woodhead publishing in materials)
CRC Press, ©2009 218 p. $179.95
Petrushkin and Samartsev (both at the Zavoisky Physical-Technical Institute) outline the theory behind the use of semiconductor lasers in cooling solids, then go on to explore such topics as self-cooling solid-state lasers and their extension into solid-state laser refrigerators. Other topics include optical echo-processors; advances in thermokinetic theory for the cooling of quantum wells; and the cooling of solid-state quantum processors. This is a translation of the second Russian edition.

QC176 2009-014697 978-1-60741-550-3
Magnetic properties of solids.
Title main entry. Ed. by Kenneth B. Tamayo. (Materials science and technologies series)
Nova Science Publishers, ©2009 342 p. $129.00
A handful of common metals are the superstars of magnetism, but all materials are influenced to some degree or another by magnetic fields, and can be divided according to their response to externally applied magnetic fields as diamagnetic, paramagnetic, or ferromagnetic. Magnetic nanoparticles are pretty exciting to scientists right now because they display super-paramagnetism, and they are the main concern of the physical scientists here. They consider such topics as the non-equilibrium magnetism of single-domain particles for characterizing magnetic nanomaterials, site disorder and finite size effects in rare-earth manganites, processing and the properties of thin manganite films, studying magnetic properties of semiconductors and nanomaterials by different theoretical methods, obtaining magnetic and electric information on organic systems using electron spin resonance, and the orbital dilution effect in the Mott insulating system.

QC327 2009-026822 978-981-4289-56-6
Stability criteria for fluid flows.
Georgescu, Adelina and Lidia Palese. (Series on advances in mathematics for applied sciences; v.81)
World Scientific, ©2009 399 p. $120.00
Georgescu (Academy of Romanian Scientists) and Palese (U. of Bari, Italy) set out the main methods, techniques, and tricks used to derive sufficient conditions for fluid flow stability. They distinguish between linear and nonlinear cases, which require different treatments. Though mostly concerned with analytic approaches, they also outline geometric perspectives of dynamical systems. They describe mathematical models governing the stability of fluid flows, incompressible Navier-Stokes fluid, elements of calculus variations, variants of the energy method for non-stationary equations, applications to linear Bénard convections, variational methods applied to linear stability, and applications of the

direct method to linear stability.

QC584 978-1-84735-093-0
Polymers in aerospace applications.
Fried, Joel R. (Rapra review reports; 192)
Smithers Rapra, ©2010 136 p. $140.00 (pa)
Fried (U. of Cincinnati, Ohio) surveys the current applications of adhesives, fibers, composites, nanocomposites, and foams in aerospace areas, then presents paragraph-long abstracts of 475 books and articles that have been published since 1990, when the previous such volume in the series on such application was compiled. The principle use for polymers in aerospace applications, he explains, is as a matrix material and/or reinforcing fiber for composites, but they are on occasion uses as adhesives, anti-misting additives, coatings, elastomers, fibers, and foams.

QC611 2009-034508 978-1-60876-226-2
Superconductivity and superconducting wires.
Title main entry. Ed. by Dominic Matteri and Leone Futino. (Horizons in world physics; v. 267)
Nova Science Publishers, ©2010 340 p. $129.00
Physicists from around the world synthesizes research on the phenomenon, with an emphasis on superconducting composite wires or tapes, which are subjected to stresses such as residual stresses arising from the mismatch of the coefficient of thermal expansion among the constituents, tensile and bending stresses during winding to make coils, and electromagnetic force in operation. Among their topics are mechanical behavior and its relation to critical current in Bi2223-superconducting composite tapes, the fishtail effect in high-temperature superconductors of strong pinning ability, orbital physics in the sodium cobalt oxyhydrate superconductors, superconductivity in highly correlated systems, computing with superconducting circuits of Josephson junctions, superconducting transitions in wire networks under spatially modulated magnetic fields, and superconducting mini-undulators.

QC718 2009-033249 978-1-4200-8311-8
Complex and dusty plasmas; from laboratory to space.
Title main entry. Ed. by Vladimir E. Fortov and Gregor E. Morfill. (Series in plasma physics; 25)
CRC / Taylor & Francis, ©2010 418 p. $129.95
Plasmas are dusty when they contain solid or liquid particles with negative or positive charges; they show up in such places as planetary rings, comet tails, interplanetary and interstellar clouds, and around artificial satellites and space stations. Those used in laboratory experiments are often called complex to distinguish them from the naturally occurring ones. Both kinds are considered here by physicists mostly from the Joint Institute for High Temperatures at the Russian Academy of Sciences in Moscow, and the Max-Planck Institute for Extra-Terrestrial Physics in Garching, Germany. Among their topics are types of experimental complex plasmas, particle dynamics, kinetic studies of fluids and solids with complex plasmas, the numerical simulation of complex plasmas, and applications such as fusion reactors and nuclear photovoltaic electric batteries.

QC794 2009-040058 978-1-4200-7906-7
The standard model and beyond.
Langacker, Paul. (Series in high energy physics, cosmology, and gravitation)
CRC Press, ©2010 663 p. $79.95
This is an advanced introduction to the physics and formalism of the standard model of particle physics, which is currently the most commonly accepted theory of the strong, electromagnetic, and weak interactions, and other non-abelian gauge theories. Assuming an introductory-level background in particle physics, Langacker (Institute for Advanced Study) intends the work to provide researchers with the ability to understand the structure and phenomenological consequences of the standard model, construct extensions, and carry out calculations at tree level. Eight chapters address notations and conventions, calculational techniques in field theory and the status of quantum dynamics, global and local symmetries and the construction of non-abelian gauge theories, the strong interactions and the structure and tests of quantum chromodynamics, electroweak interactions and theory (including neutrino masses), extensions to the standard model, supersymmetry, extended gauge groups, and grand unification.

QC880 2009-016571 978-1-60741-091-1
Atmospheric turbulence, meteorological modeling and aerodynamics.
Title main entry. Ed. by Peter R. Lang and Frank S. Lombargo.
Nova Science Publishers, ©2010 722 p. $129.00
This collection of research and review papers and short commentaries highlights the latest research in modeling of atmospheric turbulence and applications in fluid dynamics, aerodynamics,

and atmospheric and climatology research. Numerical and experimental investigations of fluid dynamics of high speed flows, the determination of aerodynamic forces on sails, large-eddy simulation of free shear and wall-bounded turbulent flows, and a semi-analytic model of fog effects on visions are some areas discussed. Other topics explored include ambient air temperature interpolation in inhomogeneous regions, parameterizing inclined state boundary layers, new trends in phonological modeling, and turbulent scalar transfer modeling in reacting flows. Information on the editors is not given.

CHEMISTRY

QD281 2009-034801 978-1-4200-6792-7
Advances in Friedel-Crafts acylation reactions; catalytic and green processes.
Sartori, Giovanni and Raimondo Maggi.
CRC Press, ©2010 207 p. $149.95
The Friedel-Crafts acylation reaction is of interest to organic chemists in academia and industry. This work reviews the most important research on the Friedel-Crafts acylation reaction published during the past 30 years, and demonstrates how to make this reaction more economical and less damaging to the environment. Coverage encompasses all acid-catalyzed Friedel-Crafts-like acylation reactions, including classic Lewis and Brönsted acid types, as well as innovative multicomponent super-acid catalysts. Emphasis is on results obtained in gas-phase or under continuous fixed-bed reaction conditions. Material is in four sections on stoichiometric acylations, catalytic homogeneous and catalytic heterogeneous acylations, and phenol acylations. Sartori is head of the Clean Synthetic Methodologies Groups at the University of Parma, Italy. Maggi teaches organic chemistry at the University of Parma.

QD281 2009-005621 978-0-470-13798-7
Handbook of transition metal polymerization catalysts.
Title main entry. Ed. by Raymond E. Hoff and Robert T. Mathers.
John Wiley & Sons, ©2010 575 p. $149.95
Chemists focus here on a very specific group of catalysts that exert some distinctive control on the nature of the polymers formed (except traditional free-radical initiators), some considering a particular catalysts of current or historical importance, and others exploring aspects relevant to the whole group of materials and processes. Among the topics are porous silica in transition metal polymerization catalysts, supported magnesium-titanium-based Ziegler catalysts for producing polyethylene, product morphology in olefin polymerization with polymer-supported metallocene catalysts, copper catalysts for olefin polymerization, ring-opening metathesis polymerizations and acyclic diene metathesis polymerizations with homogeneous ruthenium and molybdenum catalysts and initiators.

QD416 2009-038020 978-1-4200-6315-8
Handbook of essential oils; science, technology, and applications.
Title main entry. Ed. by K. Hüsnü Can Baser and Gerhard Buchbauer.
CRC Press, ©2010 975 p. $229.95
Scientists in pharmacy, pharmacology, botany, and related disciplines and industries contribute to a comprehensive reference on oils produced by plants that display biological activity and can be harvested for commercial use. Their topics include the history and sources of essential oil research, production, chemistry, analysis, a constituent-based approach to evaluating the safety of essential oils, the metabolism of terpenoids in animals models and humans, phytotherapeutic uses of essential oils, aromatherapy, industrial uses, encapsulation and other programmed release techniques for essential oils and volatile terpenes, aroma-vital cuisine, trafficking, storage and transport, and the impact of recent European Union legislation on flavors and fragrances on essential oils.

QD433 2009-040943 978-1-4200-4402-7
Mass spectrometry of nucleosides and nucleic acids.
Title main entry. Ed. by Joseph H. Banoub and Patrick A. Limbach.
CRC Press, ©2010 492 p. $149.95
The past 15 years have seen great advances in the investigation of nucleic acids and their components, with progress being made in the areas of accurate mass determination, sequencing, study of noncovalent interactions, characterization of isolated and synthetic DNA and RNA, and more. Banoub (biochemistry, Memorial U. of Newfoundland, Canada) and Limbach (chemistry, U. of Cincinnati, US) present 15 chapters that review and summarize these recent advances, as well as explore the next generation of mass spectrometry analyses of nucleic acids and their complexes. The text is intended to be equally accessible to nucleic acid experts with no experience in mass spectrometry and those with expertise in mass spectrometry but little experience with nucleic acids.

QD921 2009-052144 978-0-470-31990-1
Organic crystal engineering; frontiers in crystal engineering.
Title main entry. Ed. by Edward R.T. Tiekink et al.
John Wiley & Sons, ©2010 319 p. $260.00
Tieking (materials science and engineering, Nanyang Technological U., Singapore), Vittal (chemistry, National U. of Singapore, Singapore), and Zaworotko (chemistry, U. of South Florida, US) present a "snapshot" of on-going research in the field of organic crystal engineering in this volume of the Frontiers in Crystal Engineering series. Eight chapters discuss the role of the Cambridge Structural Database in crystal engineering; computational crystal structure prediction; multi-component pharmaceutical crystalline phases and engineering for performance; complex formation of surfactants with aromatic compounds and their pharmaceutical applications; hydrogen bonding and molecular packing in multi-functional crystal structures; persistence of N-H…S hydrogen bonding in thiocarbamide structures; crystal engineering with molecules containing amide and pyridine functionalities; and urea/thiourea-anion host lattices, stabilization of labile species, and designed construction of rosette ribbon and layers.

GEOLOGY

QE1 978-1-86239-277-9
The making of The Geological Society of London.
Title main entry. Ed. by C.L.E. Lewis and S.J. Knell. (Special publication; no.317)
Geological Society Pubg. House, ©2009 471 p. $240.00
Lewis, chairman of the History of Geology Group (HOGG) and Knell (museum studies, University of Leicester) present an overview of the first two hundred years of the London Geological Society. Several of the articles cover the personalities of the men who founded it, before geology was a recognized discipline. Others chronicle the development of geological societies in Europe, North America and Australia. The role of the society within larger social movements is noted, particularly during the Napoleonic wars. The articles all stress the human element in the growth of the Society, touching on individual careers and the inevitable clashes of ego among members. The first women admitted as members in 1919 are listed with brief biographies. An appendix reprints the first newsletter of the group, illustrating how much has been learned over the past two centuries. The final section, on the festivities surrounding the bicentennial, shows that geologists have a sense of fun as well as history. Even for those who know little about the field, this is an enjoyable and informative look at the people who established geology in Britain. Distributed in the US by The Geological Society.

BIOLOGY

QH212 2009-027797 978-1-4200-7886-2
Nanoscopy and multidimensional optical fluorescence microscopy.
Title main entry. Ed. by Alberto Diaspro.
CRC Press, ©2010 448 p. $129.95
Highlighting the work of physicists, chemists, and biologists developing methods to examine biological functions at the microscopic level, this work describes recent findings and techniques in optical nanoscopy (also known as super-resolution microscopy) and introduces emerging nanofluorescence microscopy methods. Some subjects illuminated include STED microscopy with compact light sources, nonlinear fluorescence imaging by saturated excitation, fluorescence microscopy with extended depth of field, and single particle tracking. Other areas detailed are fluorescence correlation spectroscopy, photobleaching minimization in single- and multi-photon fluorescence imaging, and applications of second harmonic generation imaging microscopy. The book is illustrated with a wealth of color and b&w images. It will be of interest to researchers in photonics and molecular biology. Diaspro is affiliated with the Italian Institute of Technology.

QH324 2009-017384 978-1-60566-768-3
Biocomputation and biomedical informatics; case studies and applications.
Title main entry. Ed. by Athina Lazakidou.
Medical Information Science Reference, ©2010 338 p. $245.00
Biomedical informatics is the scientific field that examines the storage, retrieval, sharing, and optimal use of biomedical information and data. This collection of articles is written on assorted topics in the biomedical informatics areas of bioinformatics, biocomputation, and biomdedical technologies. Intended for scientists and students/researchers working in these fields. More specific themes include medical imaging, nanotechnology and nanoproducts, genomics and Grid technology, medical informatics, systems biology, and modeling in biomedical research. Lazakidou (health informatics, University of Peloponeese, Greece) edits the works by international experts.

QH324 2009-939536 978-1-60327-193-6
Bioinformatics methods in clinical research.
Title main entry. Ed. by Rune Matthiesen. (Methods in molecular biology; 593)
Humana Press Inc., ©2010 387 p. $110.00
Matthiesen (Institute of Molecular Pathology and Immunology of the U. of Porto, Portugal) presents 16 chapters describing algorithms used in publicly available software tools for advanced research in clinical omics (e.g. genomics, proteomics, et cetera). Specific topics include techniques in cluster analysis, biomarkers in breast cancer, genome-wide proximal promoter analysis and interpretation, feature selection and machine learning with mass spectroscopy data, computational methods for analysis of two-dimensional gels, algorithms and methods for correlating experimental results with annotation databases, and analysis of biological processes and diseases using text mining approaches.

QH541 2009-035957 978-1-4200-9441-1
Remote sensing of coastal environments.
Title main entry. Ed. by Yeqiao Wang. (Taylor & Francis series in remote sensing applications)
CRC Press, ©2010 423 p. $129.95
Editor Wang (natural resources science, U. Rhode Island) and 46 contributors provide a state-of-the-art overview of developments in the technologies of geospatial data acquisition, imaging, and computing used in studying coastal environments. They discuss the issues relating to coastal environments, measuring and monitoring coastal zones, and provide guidance for how resource managers and other decision makers can use the information obtained in coastal zone management. Topics include: LiDAR/Radar remote sensing, hyperspectral remote sensing, high spatial-resolution remote sensing, remote sensing and in situ measurements for habitat mapping, and effects of lane use/land cover change in coastal areas. Numerous illustrations are included. The book is intended for a specialized technical audience.

QH585 2009-049247 978-0-470-74155-9
Practical cell analysis.
Pappas, Dimitri.
John Wiley & Sons, ©2010 294 p. $90.00
Pappas (chemistry and biochemistry, Texas Tech U.) provides guidance on the analysis of cells, bringing together insights from the fields of analytical chemistry and biology. Opening chapters discuss acquiring cells, cell types, and how to choose a cell line or primary cell; the cell laboratory, including issues of equipment and ergonomics; and culture medium, additives, and practical aspects of maintaining cells for analysis. Following chapters then explore the main techniques of cell analysis, including microscopy, cell separation, flow cytometry, and microfluidics. Pappas also addresses statistical considerations and concludes with a chapter on protocols, probes, and standards.

QH645 2009-042414 978-1-4200-9454-1
Cell mechanics; from single scale-based models to multiscale modeling.
Chauviére, Arnaud et al. (Chapman & Hall/CRC mathematical and computational biology series)
CRC Press, ©2010 456 p. $119.95
This book is the result of collaboration among different teams interacting within the framework of a European Research and Training Network on "Modeling, Mathematical Methods and Computer Simulation of Tumor Growth and Therapy." Reviews and articles describe theoretical and experimental approaches, methods, and tools for modeling phenomena at various scales. Early chapters cover subcellular to cellular properties and single cell migration modeling. The next section studies cell interactions with the environment, in particular the role of external mechanical forces and their effects on cell behavior. The next section, covering cellular to multicellular models, presents models of multicellular systems in areas such as developmental biology and cancer invasion, cell populations in extracellular matrix, and embryo development. The book is illustrated with b&w and color images. It will be useful to graduate students, researchers, and professors. Chauvière teaches health informatics at the Health Science Center of the University of Texas.

QP82 2009-017668 978-1-60741-431-5
Electromagnetic mind control, fact or fiction; a scientific view.
Binhi, V.N.
Nova Science Publishers, ©2009 132 p. $69.00
Binhi (physics, General Physics Institute, Russian Academy of Sciences) explores the possibility of electromagnetic mind control. He defines the term, provides a historical overview of the development of the concept in the US and Russia, and discusses known methods of extracting information about brain processes and delivering information into the brain, by exposure to electromagnetic fields and radiation, including functional MRI, brain wave monitoring, and magnetoencephalography. He examines the scientific grounds for possible mind control, including the biological and neurological effects

of radiation; the technical grounds of molecular and subcellular mechanisms validating the effects of weak electromagnetic fields; the technical limitations of targeted exposure to electromagnetic fields and radiation; and what is possible and not possible in the area of mind control, including the impossibility of mind reading.

QP187 2009-935058 978-1-60327-377-0
Molecular endrocrinology; methods and protocols.
Title main entry. Ed. by Ok-Kyong Park-Sarge and Thomas E. Curry. (Methods in molecular biology; 590)
Humana Press Inc., ©2009 429 p. $110.00
Scientists in a range of medical and biological specialties share an array of techniques currently being developed and used to study hormones. Among their topics are monitoring insulin-stimulated production of signaling lipids at the plasma membrane, adenoviral gene transfer into isolated pancreated islets, using reporter genes to study promoters of the androgen receptor, chromosome-wide analysis of protein binding and modifications, detecting proteins sumoylated in vivo and in vitro, identifying alternative transcripts using the rapid amplification of cDNA ends, reporter mice for studying intracellular receptor activity, markers of oxidative stress and sperm chromatin integrity, and planning and executing a genome-wide association study.

MEDICINE (GENERAL & PUBLIC ASPECTS)

R853 2009-027776 978-0-470-74460-4
Bioinformatics and biomarker discovery; "omic" data analysis for personalized medicine.
Azuaje, Francisco.
Wiley-Blackwell, ©2010 230 p. $129.95
Biomarkers are indicators of disease occurrence and progression that can be used to predict clinical responses to treatments and may also represent potential drug targets. They can be derived from solid tissue and bio-fluids or they can refer to non-molecular risk or clinical factors such as life-style information and physiological signals. The discovery of biomarkers is enabled with the development of advanced computer systems for analyzing the structure and function of genes, proteins, and other biological substances in the human body. In this work, Azuaje (Public Research Center for Health, Luxembourg) introduces readers to the key problems, tools, and opportunities in bioinformatics and biomarker research. Ten chapters discuss fundamental statistical concepts, biomarker-based prediction models, discovery and analysis of genotype-phenotype associations, biomarkers and gene expression data analysis, proteins and metabolomics for biomarker discovery, disease biomarkers and biological interactions networks, integrative data analysis for biomarker discovery, information resources and software tools for biomarker discovery, and current challenges and research directions in bioinformatics and biomarker discovery. Azuaje's discussion is supplemented by seven guest commentaries on various aspects of the discussion.

R853 2009-015926 978-0-470-40509-3
Methods and applications of statistics in the life and health sciences.
Balakrishnan, N.
John Wiley & Sons, ©2010 986 p. $195.00
More than 100 researchers and academics from 10 countries have contributed articles to editor Balakrishnan's (Statistics, McMaster University) one-volume resource on statistical methods, techniques, and applications for life and health science research. Besides containing classical works on statistical methods, this second edition includes more than 25 new articles and thoroughly covers the underlying statistical theory and standard applications. Topics include sequential methods in biomedical research; statistical measures of human quality of life; change-point methods in genetics; determining sample sizes for clinical trials; and mixed-effects regression models for predicting pre-clinical disease. This volume is an invaluable resource for students, academics, and researchers in biology, epidemiology, public health, and related disciplines.

R856 978-1-60807-055-8
Principles of biomedical engineering.
Madihally, Sundararajan V. (Engineering in medicine & biology)
Artech House, ©2010 481 p. $129.00
Bioengineering applies engineering principles and design concepts to medicine and biology. This work explains principles of biomedical engineering such as biotransport, bioelectric phenomena, biofluid flow, biomechanics, biomaterials, and cellular engineering, in addition to biomedical imaging, biosensors, physiological modeling, and ethical, legal, financial, and societal aspects. With a clear, comprehensible writing style, chapter case questions and problems, and 145 b&w illustrations, the book can be used as a primary text for students with some engineering background. It will also be

useful as a reference for professionals new to the bioengineering field. Madihally teaches in the School of Chemical Engineering at Oklahoma State University.

R857 2009-025404 978-0-470-46547-9
Basics of biomedical ultrasound for engineers.
Azhari, Haim.
John Wiley & Sons, ©2010 371 p. $110.00
In this introduction to biomedical ultrasound, undergraduate and gradate engineering students, academic and research engineers, and physicians and researchers in biomedical disciplines will find common applications of biomedical ultrasound explained from an engineering point of view. Early chapters give a general description of waves and cover waves in a one-dimensional medium, ultrasonic waves in fluids, and propagation of acoustic waves in solid materials. Later chapters cover attenuation and dispersion, reflection and transmission, acoustic lenses and mirrors, and transducers and acoustic fields. Application chapters describe uses of ultrasonic imaging such as the pulse-echo technique, Doppler imaging techniques, and safety and therapeutic ultrasound applications. The book includes b&w photos and diagnostic images, plus a few color images, and 50 pages of chapter problems and explained answers. Azhari conducts research in medical imaging. He is associate professor in the Department of Biomedical Engineering at the Technion-IIT in Israel.

R857 2009-031390 978-0-470-24235-3
Multiscale modeling of particle interactions; applications in biology and nanotechnology.
Title main entry. Ed. by M.R. King and David J. Gee.
John Wiley & Sons, ©2010 372 p. $110.00
Editors King (biomedical engineering, Cornell U.), Gee (mechanical engineering, Rochester Institute of Technology), and 17 co-authors explore and explain how particle interactions relate to research and the development of new applications in a variety of fields, including biological sciences, toxicology, medicine, chemical engineering, and manufacturing. Divided into two parts, the authors discuss applications in nanotechnology and applications in biology. While topics are complex, clear writing is supported by a variety of illustrations. The book is intended for students and professionals in related fields.

R858 2009-045660 978-1-61520-670-4
Handbook of research on developments in e-health and telemedicine; technological and social perspectives; 2v.
Title main entry. Ed. by Maria Manuela Cunha et al.
Medical Information Science Reference, ©2010 1309 p. $525.00
Fifty-four high-level articles are presented in two volumes, arranged thematically in sections pertaining to e-health enabling technologies; social challenges, opportunities and impact; organizational and business aspects; ongoing projects and applications—project results; and current development opportunities and future trends. A sampling of topics: intrabody communications as an alternative proposal for biomedical wearable systems; semi-automatic vertebra segmentation; electrocardiographic signal processing applications in telemedicine; ethical considerations concerning bionanotechnology in telemedicine; resistance to the implementation of electronic prescription in Brazil; knowledge management in healthcare, remote wheelchair selection, the rhetoric of private healthcare offers over the internet; virtual reality for supporting surgical planning; web-based learning for medical education; neonatal monitoring; and online advice, guidance and counseling for problem gamblers. All articles are in English although the three editors are affiliated with the Polytechnic Institute of Cavado and Ave, Portugal, and the contributors are from 23 countries, including many from Spain and Portugal, a handful from other European countries, and a lesser number from North American, Australia, and Asia.

R864 2009-025359 978-1-4200-9038-3
Information discovery on electronic health records.
Title main entry. Ed. by Vagelis Hristidis. (Chapman & Hall/CRC data mining and knowledge discovery series)
Chapman & Hall/CRC, ©2010 313 p. $89.95
Hristidis (computing and information sciences, Florida International U.) compiles 10 chapters that examine the problem of information discovery in electronic health records, and methods of searching and mining electronic health records collections for patterns, group entities in various classes, or given properties. Scientists in the areas of computer science, medicine, law, math, decision science, and biomedical engineering from the US and Europe also address the XML language used in formatting; what information records include; data quality and integration issues; ethical, legal, and social issues; data mining techniques; and searching and processing medical images. The book is aimed at medical informaticians,

computer scientists, medical and other students, and medical and statistical researchers.

INTERNAL MEDICINE, PSYCHIATRY

RC78 2009-034545 978-1-60566-956-4
Biomedical image analysis and machine learning technologies; applications and techniques.
Title main entry. Ed. by Fabio A. Gonzalez and Eduardo Romero.
Medical Information Science Reference, ©2010 370 p. $245.00
Digital medical imaging is one of the most important of clinical technologies; its use allows clinicians a noninvasive diagnostic tool and is advantageous for research. The objective of this book is to combine the latest relevant achievements of researchers working on medical imaging with a machine learning approach to image analysis and interpretation. To this end, Gonzalez (machine learning) and Romero (medical imaging) from the National University of Columbia have collected articles from well-known research groups all over the world. Covered in these fourteen chapters is an overview of concepts, techniques, and challenges, automatic feature extraction, image segmentation, and analysis and interpretation of biomedical images. The primary audience is researchers in both biomedical imaging and machine learning fields. However, the book will also prove useful for practitioners and advanced undergrad and graduate courses in the same areas.

RC86 2007-042791 978-0-7817-7332-4
Tactical emergency medicine.
Title main entry. Ed. by Richard B. Schwartz et al.
Lippincott Williams & Wilkins, ©2008 319 p. $119.00
The ideas of tactical emergency medical support originated in an effort to understand the role of medical support within law enforcement special operations and were built on a foundation that adapted and modified military special operations medical support. This textbook, written by medical operators with military and civilian law enforcement training and experience, synthesizes the multi-disciplinary knowledge of tactical emergency medical support. Forty-three chapters are organized into sections addressing tactical concepts; medical concepts; administrative issues; applied concepts and other topics (e.g., medical implications and planning for riots, canine use in tactical and rescue operations, and testifying in a legal proceeding); chemical, biological, and radiological threats and public health; and tactical training and continuous education.

TECHNOLOGY (GENERAL)

T56 2010-005982 978-1-934394-75-5
Project management; a technician guide.
Staples, Leo. (ISA technician series)
ISA, ©2010 104 p. $69.00 (pa)
This guide tackles project management from the technician's perspective, covering documentation and communication requirements, planning and resource coordination, monitoring and control, administration, and closeout, as tested in domains VI and VII of the ISA Certified Control Systems Technician (CCST) exam. While the book focuses on domains VI and VII, it describes the role that all seven domains play in the various stages of project management. The book's final chapter follows two CCSTs through a control system replacement project. Learning features include chapter review questions and answers, and b&w and color figures. The book is for technicians preparing for the CCST exam and for those who manage technicians during automation projects. Staples is an ISA Fellow.

T57 2009-038749 978-0-470-03587-0
Network modeling and simulation; a practical perspective.
Title main entry. Ed. by Mohsen Guizani et al.
John Wiley & Sons, ©2010 281 p. $100.00
This work shows how to use network modeling and simulation to solve real-world problems faced by developers as they model complex large-scale systems. The book begins by reviewing generic core concepts in systems modeling and simulation, without reference to a specific industry or tool. It then provides examples from computer and telecommunication networks to show how to apply generic simulation concepts to domain-specific problems. The book then goes on to provide tools and strategies for building simulation models and solutions from the ground up. Code examples to illustrate commonly encountered simulation tasks are presented in Simjava, MATLAB, and an original simulation tool, CASiNO (Component Architecture for Simulating Network Objects) built by the authors. Guizani is affiliated with Kuwait University, Kuwait.

T58 2009-031431 978-0-470-47325-2
Smart data; enterprise performance optimization strategy.
George, James A. and James A. Rodger. (Wiley series in systems engineering and management)

John Wiley & Sons, ©2010 327 p. $110.00
Optimal enterprise performance and timely and efficient decision making are critical in managing the massive amount of information in corporate databases. George (federal and commercial performance improvement consultant) and Rodger (MIS/decision sciences, Eberly College of Business, consultant) offer concise discussions of smart data and what it can offer. Topics also include: the case and place for smart data strategy, smart data and smart data strategy, overcoming hurdles and reaching a new performance trajectory, a glimpse into the future, and a CEO's smart data handbook. The book will interest government executives and others such as CIOs and managers of large information systems and MBA and project management and IT students.

ENGINEERING (GENERAL, CIVIL)

TA168 2009-044118 978-1-4398-1823-7
Design of enterprise systems; theory, architecture, and methods.
Giachetti, Ronald E.
CRC Press, ©2010 429 p. $99.95
Giachetti (engineering management, Florida International U.) explores the complex world of designing enterprise systems by discussing the principles, models, methods, and tools required. The book follows the enterprise engineering process from the initial concept of an enterprise to a finished design, and covers the knowledge required, design strategies, a view of the process, modeling the information structure, and organizational theory. It also covers the integration of process, information, and organization. The book is intended for engineering and business students and working professionals.

TA340 2009-043690 978-0-470-82454-2
Bayesian methods for structural dynamics and civil engineering.
Yuen, Ka-Veng.
John Wiley & Sons, ©2010 294 p. $130.00
Yuen (Department of Civil and Environmental Engineering, the University of Macau) introduces some recently developed Bayesian probabilistic methods and applications used in civil engineering and structural dynamics. The methods are developed for the identification of dynamical systems, but some of them are also applicable to static systems. The book deals with two levels of system identification problems: parametric identification with a specified model class, and the selection of model class. Civil engineering applications are described, including air quality prediction, finite-element model updating, hydraulic jump, and seismic attenuation relationships. The book begins with a literature review of applications in engineering and an introduction to basic concepts of conditional probabilities and the Bayes Theorem. Subsequent chapters introduce Bayesian methods for updating the mathematical models of dynamical systems, and discuss the problem of model updating with eigenvalue-eigenvector measurements. A final chapter covers Bayesian model class selection. About 20 pages of mathematical appendices are provided.

TA407 2009-049453 978-1-4398-0461-2
Wavelet methods for dynamical problems; with application to metallic, composite, and nano-composite structures.
Gopalakrishnan, S. and Mira Mitra.
CRC Press, ©2010 276 p. $149.95
Intended for researchers and graduate students working in advanced structural dynamics, this volume outlines the use of wavelet transforms and their applications from a structural engineering perspective by addressing problems involving solutions of ordinary and partial differential equations encountered in dynamics-related problems, as well as the use of existing and new wavelet methods for the numerical solution of structural dynamics and wave propagation problems in isotropic and anisotropic 1-D and 2-D structures due to boundary reflections, spurious dispersion, frequency, and time resolution of responses. Included are a chapter on the inverse problems, discussion of wave propagation analysis of carbon nanotubes and their composites, the application of wave propagation studies for structural health monitoring, force identification, and control of wave transmission, and MATLAB scripts. Elementary knowledge of theory of elasticity, strength of materials, linear algebra, and methods of solving partial and ordinary differential equations is assumed.

TA409 2009-044098 978-0-521-19489-1
Fracture mechanics; integration of mechanics, materials science, and chemistry.
Wei, Robert Peh-ying.
Cambridge U. Press, ©2010 214 p. $85.00
Wei (mechanical engineering and mechanics, Lehigh U.) offers a comprehensive view of engineering fracture mechanics, a branch of engineering mechanics. The author draws from a variety of source. He has used the material in the book in advanced undergraduate and graduate fracture mechanics classes, and he includes

examples of work performed by a Lehigh University group on integrative research that combined fracture mechanics, and probability and statistics, surface and electrochemistry, and materials science. The author notes that the book also would be useful as a reference for the design and management of engineered systems. While technical, the book is written clearly and is very well organized.

TA418 2009-038018 978-1-4200-9332-2
Composite materials technology; neural network applications.
Title main entry. Ed. by S.M. Sapuan and I.M. Mujtaba.
CRC Press, ©2010 354 p. $139.95
Neural networks are an established field in computer science, and is increasingly applied to a range of other sciences and technologies. Here mechanical engineers and researchers in allied areas sample the concept's use in technology using polymer composite materials. Among their topics are detecting defects in composite materials, using outlier analysis and multilayer perceptron neural networks to identify and localize damage in plastic composite plates reinforced with carbon fibers, predicting fatigue life, optimizing the neural network prediction of composite fatigue life under variable amplitude loading using Bayesian regularization, and determining initial design parameters by using genetically optimized neural network systems.

TA418 2009-044248 978-1-84821-077-6
Mechanics of viscoelastic materials and wave dispersion.
Title main entry. Ed. by Yvon Chevalier and Jean Tuong Vinh.
ISTE/Wiley, ©2010 639 p. $250.00
Writing for rheologists and mechanical engineers, Chevalier (Institut Superieur de Mécanique de Paris, France) and Vinh (mechanical engineering, U. of Paris VI, France) compile 12 chapters that explore dynamic testing of mechanical properties of materials, the methods used, and the experiments performed, with a focus on the context of bounded medium elastodynamics. Addressing both the theoretical and practical sides of wave dispersion, a group of mechanical engineers from France, Algeria, Cameroon, and Tunisia cover the complements of continuum mechanics, including linear and applied viscoelasticity; the principle of correspondence; Williams-Landel-Ferry's method; formulations of equations of motion; and the different types of rod vibrations: extension, bending, and torsion. The text is comprehensive, as it gathers all the possible groups of theories with various degrees of approximations in one place.

TA418 2009-021232 978-1-60741-947-1
Nanofibers; fabrication, performance, and applications.
Title main entry. Ed. by W.N. Chang. (Nanotechnology science and technology)
Nova Science Publishers, ©2009 447 p. $139.00
This volume contains 14 chapters on nanofibers, their fabrication, performance, and applications. Scientists working in nanoscience, polymers, chemical and textile engineering, neuroscience, and other fields around the world discuss nanothermometers, the fabrication and flow cell testing of chitin and chitosan nanofibrous membranes, the electrospinning technique, the properties of electrospun nanofibers, the features and applications of carbon nanofibers, polymer and polyacrylonitrile-based nanofibers, a spinal cord prosthetic developed from nanofibers, and carbon nanotubes. A few chapters have grammatical errors.

TA418 2009-025407 978-0-470-69994-2
Thermal convection; patterns, evolution, and stability.
Lappa, Marcello.
John Wiley & Sons, ©2010 670 p. $215.00
Lappa offers physicists and advanced students a critical, focused, and comparative study of all the different types of thermal convection, and the various factors that can influence it in the many fluid media that answer heat differences with movement. He covers equations, general concepts, and methods of analysis; classical models, characteristic numbers, and scaling arguments; examples of thermal fluid convection and pattern formation in nature and technology; thermogravitation convection and the Rayleigh-Bénard problem; the dynamics of thermal plumes and related regimes of motion; systems heated from the side and the Hadly flow; thermogravitational convections in inclined systems; thermovibrational convection; Marangoni-Bénard convection; thermocapillary convection; mixed boyancy-Marangoni convection; hybrid regimes with vibrations; and flow control by magnetic fields.

TA1634 2009-047277 978-1-60566-900-7
Machine learning for human motion analysis; theory and practice.
Wang, Liang et al.
Medical Information Science Reference, ©2010 299 p. $245.00
This work gathers recent international research

on vision-based systems for analyzing and interpreting motion from video footage. Chapter topics include graphical models for representation and recognition of human actions, common spatial patterns for real-time classification of human actions, real-time recognition of basic human activities, and a super-resolution approach for the selective analysis of noisy and unconstrained video sequences. The book's audience includes professionals working with vision applications in areas such as surveillance, sport event analysis, healthcare, video conferencing, and motion video indexing and retrieval. Wang is affiliated with the University of Melbourne-Australia. Medical Information Science Reference is an imprint of IGI Global.

BUILDING CONSTRUCTION

TH215 2009-023945 978-1-4051-9889-9
Capture and reuse of project knowledge in construction.
Title main entry. Ed. by Hai Chen Tan et al.
Wiley-Blackwell, ©2010 195 p. $127.99
A method for the live capture of reusable project knowledge in construction and other project-based industries is described here. The starts by reviewing key concepts of knowledge management and highlighting shortcomings of current practice for knowledge capture and reuse in construction. It examines potential types of reusable project knowledge in construction, and looks at the concept of collaborative learning in the context of a project environment, drawing on the construction industry as an example. The framework presented for the structure of live capture and reuse of project knowledge integrates system architecture and software development. Case studies illustrate current approaches for knowledge capture and reuse. Appendices provide summary tables. The book is for practitioners in project-based industries; it will also be of interest to students and researchers in construction management. Tan teaches in the Department of Built Environment at Universiti Tunku Abdul Rahman (UTAR), Malaysia.

MECHANICAL ENGINEERING & MACHINERY

TJ211 2009-040275 978-0-8493-7025-0
Lyapunov-based control of robotic systems.
Title main entry. Ed. by Aman Behal et al. (Automation and control engineering)
CRC Press, ©2010 375 p. $139.95
Written by Behal (U. of Florida, US), Dixon (U. of Florida, US), Dawson (Clemson U., US) and Xian (Tianjin U., China), this work describes frameworks for setting up nonlinear control design problems pertinent to robotic perception, interaction, and manipulation of environments, with the focus framework being Lyapunov-based nonlinear control design. Following an introduction to the history of robotics and the Lyapunov-based control philosophy, chapters cover the standard control design tools available for robotic systems within the context of the Lyapunov-based framework; problems in visual servoing control, including robot end-effector tracking a prerecorded time-varying reference trajectory under visual feedback from a monocular camera, estimating the shape of a continuum robot, tracking and regulation problems of wheeled mobile robots, and the classic Structure from Motion problem. They also discuss problems of path planning and control for manipulator arms and wheeled mobile robots, both when obstacle locations are known a priori and when they need to be determined in real time using fixed or in-hand vision as an active feedback element. They further address the emerging research area of human-machine interaction in the context of smart exercise machines, steer-by-wire control of vehicles, problems of force and motion in remote teleoperator systems, and rehabilitation robots for safely directing user limb motions.

TJ808 2008-909438 978-1-84564-147-4
Solar thermal and biomass energy.
Lorenzini, G. et al.
WIT Press, ©2010 211 p. $170.00
Written by a team of researchers at the U. of Bologna, Italy, this volume offers detailed, practical guidance on the types and workings of solar and biomass fuel sources on both small and large scale projects. Solar power and the physics of its capture are described in an accessible introduction. Various technologies for capturing solar power are put forth, including some experimental large-scale projects underway in Spain, with the use and advantages or disadvantages explained for each. The section on biomass energy introduces the many types of biomass that can be used before turning to a survey of the various types of technology used for biochemical and thermochemical conversion and the environmental impacts of each. Many drawings and diagrams are included. The US office of WIT Press is Computational Mechanics.

TJ853 2009-045579 978-1-4200-9354-4
Handbook of optofluidics.
Title main entry. Ed. by Aaron R. Hawkins and Holger

Schmidt.
CRC/Taylor & Francis, ©2010 --- p. $139.95
A definition for the field is still being worked out, but a provisional one is the combination of integrated optical and fluidic components in the same miniaturized system. This could encompass using fluids to affect the function of integrated optical devices, and analyzing fluids using optical elements. Contributors from the physical sciences and several branches of engineering offer an overview covering the foundation of optofluids, optical elements and devices, and bioanalysis. Among specific topics are microfabrication, photonic crystal hollow waveguides, fluid-controlled optical elements, optofluidic switches and sensors, fluid filled optical fibers, and flow cytometry and fluorescence-activated cell sorting.

ELECTRICAL ENGINEERING, ELECTRONICS

TK1001 2009-032474 978-1-60876-472-3
Introduction to power generation technologies.
Poullikkas, Andreas. (Energy science, engineering and technology series)
Nova Science Publishers, ©2009 186 p. $69.00
This book overviews current and promising electricity generation and storage technologies. It is intended as an introductory text for courses in engineering, environmental pollution, or public health. It can also serve as a reference for power generation planners, electric utility managers, energy regulators, electricity transmission system operators, and policy makers. After a chapter on basic concepts of heat and work, thermodynamics, fuels, and alternative energy sources, the book covers power plants, carbon capture and storage technologies, direct and indirect solar RES technologies, distributed generation, and storage technologies. Numerous b&w illustrations are included. Poullikkas is affiliated with the Electricity Authority of Cyprus.

TK2931 2009-006861 978-1-60692-773-1
Polymer electrolyte membrane fuel cells and electrocatalysts.
Title main entry. Ed. by Richard Esposito and Antonio Conti.
Nova Science Publishers, ©2009 459 p. $129.00
Esposito and Conti (no credentials given) compile 12 chapters and a short article on polymer electrolyte membrane and other types of fuel cells and their use as sources of sustainable energy. Chapters cover the operating principles of power conditioning systems and their performance for low-voltage, high power applications; fluid dynamics models; electrocatalysts such as platinum and conducting polymers; bipolar plates materials; the design, fabrication, and evaluation of a passive air-breathing direct methanol fuel cell and proton exchange membrane fuel cells; and direct liquid-feed and phosphoric acid fuel cells. Contributors work in mechanical, chemical, and electrical engineering around the world.

TK5102 2009-031378 978-0-470-19517-8
Adaptive signal processing; next generation solutions.
Title main entry. Ed. by Tülay Adali and Simon S. Haykin. (Adaptive and learning systems for signal processing, communication, and control)
Wiley-IEEE Press, ©2010 407 p. $120.00
Algorithms for producing results in signal processing are presented in seven chapters, addressing five themes: fundamental issues (such as optimization, efficiency, and robustness in the complex domain), turbo signal processing for equalization, tracking in the subspace domain, nonlinear sequential state estimation, and speech-bandwidth extension. The book includes a novel application of the extended Kalman filter (EKF) for the creation of a neural network to solve difficult pattern recognition problems, and compares this new approach with the classic back-propagation algorithm. Chapter problems are included. Adali is professor of electrical engineering and director of the Machine Learning for Signal Processing Laboratory at the University of Maryland. Haykin directs the Cognitive Systems Laboratory at McMaster University.

TK5103 978-0-521-11216-1
Nanotechnologies for future mobile devices.
Ryhänen, Tapani et al.
Cambridge U. Press, ©2010 268 p. $70.00
Contributors from European universities and corporations report results from a project to develop concrete, tangible technologies for future mobile electronic devices, and to explore nanotechnologies in order to understand their impact in the bigger picture—and everything is bigger from that perspective. The topics include when everything is connected; possible developments in structural materials relevant to future mobile devices; energy and power; computing and information storage solutions; sensing, actuating, and interaction; the future of radio communication; flat panel displays;

manufacturing and open innovation; what the Internet teaches about the development of nanotechnology.

TK5105 978-1-4200-6452-0
Advances in network management.
Ding, Jianguo.
CRC Press, ©2010 364 p. $69.95
Ding (electronic engineering, U. of Luxembourg) explores new management solutions, paradigms, protocols, and techniques that are being developed to keep up with the increasing size and complexity of computer and communication networks. His treatment ranges from basic concepts to research level material, and is suitable for researchers, advanced students, professional network managers, and network designers and planners. He covers the evolution of networks and of network management, theories and techniques for network management, managing emerging networks and services, and autonomic computing and self-management.

TK5105 2009-023192 978-1-4398-0856-6
Internet networks; wired, wireless, and optical technologies.
Title main entry. Ed. by Krzysztof Iniewski.
CRC Press, ©2010 333 p. $99.95
International contributors explain how wireless, wireline, and optical networks work together in this book for telecommunication engineers, chip designers, and engineering students. The book offers an overview of how wireless communication technologies will continue to reshape markets and business models, addressing topics such as mobile wiMAX, the service layer for next generation digital media services, enhancing TCP performance in hybrid networks, broadband over power line communication, and ethnernet optical transport networks. Case studies and examples from industry are presented, and there are b&w illustrations on nearly every page. Iniewski is a private sector researcher focusing on hardware design for medical and networking applications.

TK5105 2009-045211 978-1-60566-896-3
Integrating usability engineering for designing the web experience; methodologies and principles.
Title main entry. Ed. by Tasos Spiliotopoulos et al.
Information Science Reference, ©2010 415 p. $180.00
The editors (National and Kapodistrian U. of Athens) of this collection believe advances in ICT have complicated modern applications and their interfaces, making web systems difficult to use, and suggest usability methods for web development based on inquiry, prototyping, inspection, and testing. The opening chapters examine the reasons advances in usability research do not find their way into the web industry and offer examples of successful user-centered design methods. Other topics of the 18 chapters include intelligent web tools for the literacy of deaf people, a theoretical framework measuring the usability of retail sites, the influence of e-commerce website colors on usability, and multiple-user simultaneous testing studies.

TK5105 2009-036053 978-1-61520-769-5
Movement-aware applications for sustainability mobility; technologies and approaches.
Title main entry. Ed. by Monica Wachowicz.
Information Science Reference, ©2010 318 p. $180.00
Location sensing technologies such as Bluetooth, Mobile User Interfaces, Location Sensing, Display Technologies, Mobile Web and Widgets, Cellular Broadband, and Near Field Communication for 'everywhere, anytime' services and applications are changing the concepts of location and mobility. Wachowicz (Wageningen U. and Research Centre, the Netherlands) introduces 16 chapters that focus on the trends in and use of such technologies, and their wider applicability in supporting sustainable mobility. International contributors present the findings of current research on developing innovative approaches for collecting, representing, and analyzing cross-disciplinary movement data sets being generated by such technologies toward a Geographic Information Science. Examples of applications and policy areas treated include energy use/conservation, health monitoring, spatial planning, and transportation.

TK5105 978-1-60566-992-2
Progressive concepts for semantic web evolution; applications and developments.
Title main entry. Ed. by Miltiadis Lytras and Amit Sheth.
Information Science Reference, ©2010 391 p. $180.00
This work explains theories, models, and applications of semantic web research, focusing on mobile ontologies and agents, fuzzy databases, and new approaches to retrieval and evaluation in semantic web. Some specific topics covered include service provisioning through real world objects, ontology driven document identification in semantic web, a fuzzy ontology generation framework from fuzzy relational databases,

and semantic-based Bluetooth-RFID interaction for advanced resource discovery in pervasive contexts. Lytras is affiliated with the U. of Patras, Greece. Sheth is affiliated with Wright State U.

TK5105 2009-053447 978-1-61520-684-1
Web services research for emerging applications; discoveries and trends.
Title main entry. Ed. by Liang-Jie Zhang.
Information Science Reference, ©2010 693 p. $180.00
Zhang (IBM T. J. Watson Research Center) collects international research on the latest applications, processes, and protocols in Web services research. Individual chapters focus on composing and coordinating Web services, XML security, and service oriented architecture. Some topics investigated are security personalization for Internet and Web services, XML encoding, and object-oriented architecture for Web services eventing. Other subjects include data mining in web services discovery and monitoring, and provenance management for data-driven workflows with Karma2.

TK5105 2009-026285 978-1-60566-950-2
Web services security development and architecture; theoretical and practical issues.
Title main entry. Ed. by Carlos Gutierrez et al.
Information Science Reference, ©2010 352 p. $180.00
International contributors in IT security engineering, semantic web, web services, and service-oriented architecture (SOA) present keys theoretical and practical approaches, research lines, and challenges in the field of security in SOA systems. After a section on web services security engineering, five chapters on web services security architectures, bulk of the book, focus on security policies, building federated systems using the service oriented architecture paradigm, and forensics over web services. Web services security standards receive their own section. The final part of the book discussion of security attacks, threat modeling, and security solutions. The book is advanced students, researchers, and those in industry, government, and standards organizations. Gutierrez is affiliated with Correos Telecom.

TK5901 978-1-60783-977-4
Acoustic wave and electromechanical resonators; concept to key applications.
Campanella, Humberto. (Integrated microsystems series)
Artech House, ©2010 345 p. $139.00
Micro-resonators and nano-resonators have become key components in modern radio frequency systems and sensors, says Campanella (Centro Nacionale de Microelectrónica, and U. Autónoma de Barcelona), and explains some of the intricacies of the technology to graduate or senior undergraduate students in such fields as physics and material science, to process and design engineers, and to researchers familiar with micro-electronic manufacturing. His topics include fabrication techniques, performance optimization, integrating resonators to CMOS technologies, sensor and radio frequency applications, and a case study of a high-level design of a temperature-compensated oscillator.

TK7875 2009-045518 978-0-8218-4957-6
Mathematical analysis of partial differential equations modeling electrostatic MEMS.
Esposito Pierpaolo et al. (Courant lecture notes; 20)
American Mathematical Society, ©2010 318 p. $50.00 (pa)
Researchers have spread out along three basic routes to the mathematical modeling of the very tiny moving parts in micro-electro-mechanical systems (MEMS), and it is the electrostatic (rather than thermal or biological) approach that Esposito (U. degli Studi Roma Tre), Nassif Ghoussoub (U. of British Columbia) and Yujin Guo (U. of Minnesota) pursue in these lecture notes. In particular, they present a rigorous mathematical analysis for various phenomena related to some of the simplest proposed models, many of which were observed either numerically or through ordinary differential equation methods in the radially symmetric case. They cover second-order equations modeling stationary MEMS, parabolic equations modeling MEMS dynamic deflection, and fourth-order equations modeling non-elastic MEMS.

TK7875 2009-041386 978-1-84821-190-2
Micro, nanosystems, and systems on chips; modeling, control, and estimation.
Title main entry. Ed. by Alina Voda.
ISTE/Wiley, ©2010 308 p. $120.00
Electrical engineers and other contributors explain to researchers, engineers, and students how concepts from dynamical control systems can be adapted and applied to the development of original very small systems and to their human interfaces. All the examples are based on models, which are used in the design of the feedback control law for estimation or for human interface design. Among the topics are microbeam dynamic shaping by closed-loop electrostatic actuation using modal

control, the observer-based estimation of weak forces in a nanosystem measurement device, fractional order modeling and identification for electrochemical nano-biochip, and a human-in-the-loop tele-micro-manipulation system assisted by multisensory feedback.

TK7881 2009-043846 978-1-4200-9429-9
Power electronics; advanced conversion technologies.
Luo, Fang Lin and Hong Ye.
CRC Press, ©2010 722 p. $129.95
With its worked examples and homework problems, this book for engineering students and professionals in power electronics can be used in university courses in power electronics, and as a reference for engineers involved in the design and application of power electronics. It focuses on advanced conversion technologies for power electronics and AC/DC conversion, describes methods for determining accurate solutions in the design of converters for industrial applications, and details about 200 original topologies related to advanced converters. The book begins by introducing general background on converters, then covers controlled and uncontrolled converters, power factor correction, voltage-lift, super-lift, and ultra-lift converters, traditional and improved AC/AC and DC/DC converters, various types of DC/AC converters, and AC/DC/AC and DC/AC/DC converters. New converter circuits and emerging trends are also analyzed. Luo teaches in the School of Electrical and Electronic Engineering at Nanyang Technological University, Singapore. Ye is a research fellow with Nanyang Technological University.

TK8315 2009-053629 978-0-8194-8077-4
Analysis and evaluation of sampled imaging systems. (CD-ROM included)
Vollmerhausen, Richard H. (Tutorial texts in optical engineering; v.TT87)
SPIE, ©2010 288 p. $61.00 (pa)
This book/CD-ROM tutorial covers theory and processes for evaluating and comparing the performance of imaging technologies, encompassing a wide range of display formats and interfaces. It will be useful for technical managers, design engineers, and system analysts. Part I provides mathematical tools for analyzing sample images. It includes relevant material from the publisher's Analysis of Sampled Imaging Systems (2000), on sampling concepts and shift-variant and shift-invariant systems, plus new and expanded material on Fourier optics and blur. Part II is entirely new, and it discusses performance evaluation of electro-optical imagers. Part III, on applications, contains chapters on computer programs, application data, and infrared focal plane arrays. The CD-ROM provides computer programs to calculate the resolution of thermal and reflected light imagers. In keeping with the tutorial nature of the series, the book includes many b&w images, data tables, and examples. Vollmerhausen is a consultant in electro-optical systems analysis and modeling.

MOTOR VEHICLES, AERONAUTICS, ASTRONAUTICS

TL272 2009-034903 978-1-60566-840-6
Telematics communication technologies and vehicular networks; wireless architectures and applications.
Title main entry. Ed. by Chung-Ming Huang et al.
Information Science Reference, ©2010 411 p. $180.00
The opening section of this collection introduces vehicular network architectures, intelligent transportation systems, and wireless access techniques for vehicular environments. The rest of the 22 papers are divided into sections on location-based services, vehicular ad hoc networks, delay tolerant networks, traffic controls, and simulation. The Taiwanese contributors describe the WiMAX network reference model, MAC and routing protocols, the simple transportation management framework, the Sydney coordinated adaptive traffic system, mobility models, and possible security attacks. Two papers integrate the open gateway service initiative vehicle expert group (OSGi/VEG) into an Android platform, and develop a remote vehicular management and diagnosis system on the OSGi gateway.

TL574 2009-284399 978-981-283-301-3
Constructive modeling of structural turbulence and hydrodynamic instabilities.
Belotserkovskii, O.M.
World Scientific, ©2009 464 p. $129.00
Through advances in computational capabilities, it is now possible to carry out direct numerical simulation of Rayleigh-Taylor, Kelvin-Helmholtz, and Richtmyer-Meshkov hydrodynamic instabilities. Belotserkovskii here outlines numerical models of turbulence and carries his analysis through the transition from two-dimensional to three-dimensional flows. The volume contains extensive mathematical equations, graphic results, and some three

dimensional models. There are also five substantial appendices, three of which are reprints of relevant papers previously published in scientific journals. There are extensive references, but no index.

CHEMICAL TECHNOLOGY

TP339 2009927711 978-1-60761-213-1
Biofuels; methods and protocols.
Title main entry. Ed. by Jonathan R. Mielenz. (Methods in molecular biology; 581)
Humana Press Inc., ©2009 293 p. $99.00
American researchers in physical and biological sciences provide information for scientists and engineers who are working to develop new sources of energy from biological material. Among their topics are biomass supply logistics and infrastructure, the genetic transformation of switchgrass, pretreating biomass by aqueous ammonia for bioethanol production, lime pretreatment, the high-throughput screening of plant cell-wall composition using pyrolysis molecular beam mass spectroscopy, cellulase assays, basic laboratory culture methods for anaerobic bacteria, the simultaneous saccharification and fermentation and partial saccharification and co-fermentation of lignocellulosic biomass for ethanol production, and small-scale production and quality requirements of biodiesel.

TP339 2009-041780 978-0-470-51312-5
Biomass to biofuels; strategies for global industries.
Title main entry. Ed. by Alain A. Vertes et al.
John Wiley & Sons, ©2010 559 p. $90.00
In so far as any distinction remains, the contributors are about equally from business and academia, and their studies are balanced between financial, scientific, and engineering concerns. They cover the structure of the bioenergy business; diesel from biomass; ethanol and butanol; and hydrogen, methane, and methanol. Specific topics include biofuel demand realization, advanced refineries for producing fuel ethanol, diesel from syngas, biofuels from microalgae and seaweeds, advanced technologies for biomass hydrolysis and saccharification using novel enzymes, producing fuel ethanol from lignocellulosic raw materials using recombinant yeasts, advanced fermentation technologies, hydrogen generation by microbial cultures, producing and utilizing methane biogas as renewable fuel, and financing strategies for industry-scale biofuel production and technology development start-ups.

MANUFACTURES

TS171 2009-036991 978-0-521-11660-2
Optimal device design.
Title main entry. Ed. by A.F.J. Levi and Stephan Haas.
Cambridge U. Press, ©2010 282 p. $110.00
Levi (electrical engineering and physics and astronomy, U. of Southern California) and Haas (theoretical condensed matter physics, U. of Southern California) describe the application of optimal design to atomic scale and nanoscale devices, which combines applied mathematics, smart computation, physical modeling, and the use of advanced engineering and fabrication tools in order to overcome the shortcomings of conventional disciplinary thinking and ad hoc engineering. Eight chapters discuss frontiers in device engineering, atoms-up design, electron devices and electron transport, aperiodic dielectric design, design and the classical-quantum boundary, robust optimization in high dimensions, mathematical framework for optimal design, and future directions. An appendix provides information on global optimization algorithms.

TS176 2010-000181 978-1-936007-01-1
Domain ontologies for reasoning machines in factory automation.
Lastra, Jose L. Martinez et al.
ISA, ©2010 138 p. $69.00 (pa)
The authors see future production platforms that are dynamically adaptable to market changes with minimal human input. This book introduces the ontology as a way to formally represent knowledge using logic, offers a method for building domain ontologies, and introduces tools available for editing domain ontologies. The authors explain how the concept would be exceptionally useful in the current realm of global manufacturing, mass customization, and ever shortening product life cycles because it would allow for quick and autonomous reconfiguration of manufacturing systems. An extensive list of acronyms is included. Authors are Lastra (production engineering, Tampere U. of Technology, Finland), Ivan M. Delamer, and Fernando Ubis.

MILITARY & NAVAL SCIENCE

U167 2009-023765 978-0-7546-7767-3
Human factors issues in combat identification.
Title main entry. Ed. by Dee H. Andrews et al. (Human factors in defense)

Ashgate Publishing Co., ©2010 361 p. $124.95

Mostly psychologists, but some contributors from other fields as well, explore how human factors affect the risk of error in combat identification, and how that risk can be reduced in increasingly complex battlespace. In sections on cognitive processes, visual discrimination, situation awareness, teams, and automation, they consider such topics as measuring vigilance abilities to enhance combat identification performance, what visual discrimination of fractal textures reveals about discriminating camouflaged targets, team coordination and shared situation awareness in combat identification, comparing individual and team judgment accuracy for target identification under heavy cognitive demand, results from a new behavioral rating instrument concerning team cognition during a simulated close air support exercise, the effects of automation bias on operator compliance and reliance, and mitigating friendly fire casualties through enhanced battle command capabilities.

UB212 2009-026212 978-0-7546-7265-4

Command and control; the sociotechnical perspective.

Title main entry. Ed. by by Guy Walker et al. (Human factors in defence)

Ashgate Publishing Co., ©2009 198 p. $99.95

In this highly technical proposal, Walker (School of the Built Environment, Herior-Watt University, Edinburgh) and his colleagues state that the use of computer systems and the Internet by the military is flawed by a lack of human interface. They suggest a blending of Network Enabled Capability (NEC) with Sociotechnical Systems Theory (SST). The example of Wal-Mart as an efficiently organized business model is put forward. In terms of information gathering and distribution, they feel it succeeds in the way that military operations should. By adding a human factor to decisions now being made for armies in the field by computer, they believe that effectiveness could be increased and collateral damage decreased. The specific nature of this proposal means that one needs a solid IT background and knowledge of military strategy to understand it. That is presumably the group at which this proposal is aimed.

PUBLISHING, LIBRARY SCIENCE, BIBLIOGRAPHY

Z678 2010-004818 978-1-55570-706-4

Technology training in libraries.

Houghton-Jan, Sarah. (The tech set; no.6)

Neal-Schuman, ©2010 127 p. $55.00 (pa)

Houghton-Jan, a digital futures manager at a public library, offers a guide to help all types of libraries implement low-cost, comprehensive, and effective programs for staff to learn new technology skills. She first addresses the benefits, topics, and different types of technology training, followed by planning steps, creating technology skills lists, and a step-by-step process for implementing programs, including basic training, lunchtime brown bags, peer training, train-the-trainer programs, the 23 Things models, technology petting zoos, and online training. She ends with discussion of marketing, working with different learning styles and difficult learners, and location issues, as well as measuring and evaluating the success of the program.

Z689 2010-000228 978-1-55570-696-8

Acquisitions in the new information universe; core competencies and ethical practices.

Holden, Jesse.

Neal-Schuman, ©2010 135 p. $75.00 (pa)

As the nature of library collections has changed in response to the advent of digital information technologies, so too has the function of acquisitions, which according to Holden (a former acquisitions librarian for Stanford U. Libraries and Stanford Law Library) has become increasingly involved with the provision of access to content in a variety of formats, including resources that might once have been considered outside the scope of the library's collection. As the mission of acquisitions has changed from acquiring things to connecting with content, the process of acquisitions has changed from one that is reactive to one that is proactive. Holden sets out a concept-based approach to acquisitions, covering key traditional concepts like ordering, receiving, dealing with licenses, and using integrated library systems and online vendor databases in an acquisition workflow, while integrating those concepts into a new model that emphasizes the role of acquisitions in overall library access and service in addition to procurement. The work is intended to serve as both an introduction to those new to acquisitions and as a source of insights into the new environment for the experienced practitioner. ❖