

Engineering Science N1 Paper 2014

The two-volume set LNCS 9242 + 9243 constitutes the proceedings of the 5th International Conference on Intelligence Science and Big Data Engineering, IScIDE 2015, held in Suzhou, China, in June 2015. The total of 126 papers presented in the proceedings was carefully reviewed and selected from 416 submissions. They deal with big data, neural networks, image processing, computer vision, pattern recognition and graphics, object detection, dimensionality reduction and manifold learning, unsupervised learning and clustering, anomaly detection, semi-supervised learning.

One of the pathways by which the scientific community confirms the validity of a new scientific discovery is by repeating the research that produced it. When a scientific effort fails to independently confirm the computations or results of a previous study, some fear that it may be a symptom of a lack of rigor in science, while others argue that such an observed inconsistency can be an important precursor to new discovery. Concerns about reproducibility and replicability have been expressed in both scientific and popular media. As these concerns came to light, Congress requested that the National Academies of Sciences, Engineering, and Medicine conduct a study to assess the extent of issues related to reproducibility and replicability and to offer recommendations for improving rigor and transparency in scientific research. *Reproducibility and Replicability in Science* defines reproducibility and replicability and examines the factors that may lead to non-reproducibility and non-replicability in research. Unlike the typical expectation of reproducibility between two computations, expectations about replicability are more nuanced, and in some cases a lack of replicability can aid the process of scientific discovery. This report provides recommendations to researchers, academic institutions, journals, and funders on steps they can take to improve reproducibility and replicability in science.

Emerging from the confluence of Greco-Roman mythology and regional folklore, the mermaid has been an enduring motif in Western culture since the medieval period. It has also been disseminated more widely, initially through Western trade and colonisation and, more recently, through the increasing globalisation of media products and outlets. *Scaled for Success* offers the first detailed overview of the mermaids dispersal outside Europe. Complementing previous studies of the interrelationship between the mermaid and Mami Wata spirit in West Africa, this volume addresses the mermaids presence in a range of Middle Eastern, Asian, Australian, Latin American and North American contexts. Individual chapters identify the manner in which the mermaid has been variously syncretised and/or resignified in contexts as diverse as Indian public statuary, Thai cinema and Coney Islands annual Mermaid Parade. Rather than lingering as a relic of a bygone age, the mermaid emerges as a versatile, dynamic and, above all, polyvalent figure. Her prominence exemplifies the manner in which contemporary media-lore has extended the currency of established folkloric

figures in new and often surprising ways. Analysing aspects of religious symbolism, visual art, literature and contemporary popular culture, this copiously illustrated volume profiles an intriguing and highly diverse phenomenon. Philip Hayward is editor of the journal *Shima* and holds adjunct professor positions at the University of Technology Sydney and at Southern Cross University. His previous volume, *Making a Splash: Mermaids (and Mermen) in 20th and 21st Century Audiovisual Media*, was published by John Libbey Publishing/Indiana University Press in 2017.

This updated and revised first-course textbook in applied probability provides a contemporary and lively post-calculus introduction to the subject of probability. The exposition reflects a desirable balance between fundamental theory and many applications involving a broad range of real problem scenarios. It is intended to appeal to a wide audience, including mathematics and statistics majors, prospective engineers and scientists, and those business and social science majors interested in the quantitative aspects of their disciplines. The textbook contains enough material for a year-long course, though many instructors will use it for a single term (one semester or one quarter). As such, three course syllabi with expanded course outlines are now available for download on the book's page on the Springer website. A one-term course would cover material in the core chapters (1-4), supplemented by selections from one or more of the remaining chapters on statistical inference (Ch. 5), Markov chains (Ch. 6), stochastic processes (Ch. 7), and signal processing (Ch. 8—available exclusively online and specifically designed for electrical and computer engineers, making the book suitable for a one-term class on random signals and noise). For a year-long course, core chapters (1-4) are accessible to those who have taken a year of univariate differential and integral calculus; matrix algebra, multivariate calculus, and engineering mathematics are needed for the latter, more advanced chapters. At the heart of the textbook's pedagogy are 1,100 applied exercises, ranging from straightforward to reasonably challenging, roughly 700 exercises in the first four "core" chapters alone—a self-contained textbook of problems introducing basic theoretical knowledge necessary for solving problems and illustrating how to solve the problems at hand – in R and MATLAB, including code so that students can create simulations. New to this edition

- Updated and re-worked Recommended Coverage for instructors, detailing which courses should use the textbook and how to utilize different sections for various objectives and time constraints
- Extended and revised instructions and solutions to problem sets
- Overhaul of Section 7.7 on continuous-time Markov chains
- Supplementary materials include three sample syllabi and updated solutions manuals for both instructors and students

The seven-volume set comprising LNCS volumes 8689-8695 constitutes the refereed proceedings of the 13th European Conference on Computer Vision, ECCV 2014, held in Zurich, Switzerland, in September 2014. The 363 revised papers presented were carefully reviewed and selected from 1444 submissions.

The papers are organized in topical sections on tracking and activity recognition; recognition; learning and inference; structure from motion and feature matching; computational photography and low-level vision; vision; segmentation and saliency; context and 3D scenes; motion and 3D scene analysis; and poster sessions.

This book constitutes the thoroughly refereed post-workshop proceedings of the 25th International Workshop on Combinatorial Algorithms, IWOCA 2014, held in Duluth, MN, USA, in October 2014. The 32 revised full papers presented were carefully reviewed and selected from a total of 69 submissions. The papers focus on topics such as Algorithms and Data Structures, Combinatorial Enumeration, Combinatorial Optimization, Complexity Theory (Structural and Computational), Computational Biology, Databases (Security, Compression and Information Retrieval), Decompositions and Combinatorial Designs, Discrete and Computational Geometry, as well as Graph Drawing and Graph Theory. IWOCA is a yearly forum for researchers in designing algorithms field to advance creativeness of intersection between mathematics and computer science. This is the first time this conference is being held in U.S.

This book constitutes the refereed proceedings of the 11th Latin American Symposium on Theoretical Informatics, LATIN 2014, held in Montevideo, Uruguay, in March/April 2014. The 65 papers presented together with 5 abstracts were carefully reviewed and selected from 192 submissions. The papers address a variety of topics in theoretical computer science with a certain focus on complexity, computational geometry, graph drawing, automata, computability, algorithms on graphs, algorithms, random structures, complexity on graphs, analytic combinatorics, analytic and enumerative combinatorics, approximation algorithms, analysis of algorithms, computational algebra, applications to bioinformatics, budget problems and algorithms and data structures.

The book is a collection of peer-reviewed scientific papers submitted by active researchers in the International Conference on Industry Interactive Innovation in Science, Engineering and Technology (I3SET 2016). The conference is a collective initiative of all departments and disciplines of JIS College of Engineering (an autonomous institution), Kalyani, West Bengal, India. The primary objective of the conference is to strengthen interdisciplinary research and encourage innovation in a demand-driven way as desired by the industry for escalating technology for mankind. A galaxy of academicians, professionals, scientists, industry people and researchers from different parts of the country and abroad shared and contributed their knowledge. The major areas of I3SET 2016 include nonconventional energy and advanced power systems; nanotechnology and applications; pattern recognition and machine intelligence; digital signal and image processing; modern instrumentation, control, robotics and automation; civil engineering and structural design; real-time and embedded systems, communication and devices; advanced optimization techniques; biotechnology, biomedical instrumentation and bioinformatics; and outcome based education.

This book gathers the proceedings of the fifteenth International Conference on Management Science and Engineering Management (ICMSEM 2021) held on August 1-4, 2021, at the University of Castilla-La Mancha (UCLM), Toledo, Spain. The proceedings contains theoretical and practical research of decision support systems, complex systems, empirical studies, sustainable development, project management, and operation optimization, showing advanced management concepts and demonstrates substantial interdisciplinary developments in MSEM methods and practical applications. It allows researchers and practitioners in management science and engineering management (MSEM) to share their latest insights and contribution. Meanwhile, it appeals to readers interested in these areas, especially those looking for new ideas and research directions.

“Neutrosophic Sets and Systems” has been created for publications on advanced studies in neutrosophy, neutrosophic set, neutrosophic logic, neutrosophic probability, neutrosophic statistics that started in 1995 and their applications in any field, such as the neutrosophic structures developed in algebra, geometry, topology, etc.

Information Science and Electronic Engineering is a collection of contributions drawn from the International Conference of Electronic Engineering and Information Science (ICEEIS 2016) held January 4-5, 2016 in Harbin, China. The papers in this proceedings volume cover various topics, including: - Electronic Engineering - Information Science and Information Technologies - Computational Mathematics and Data Mining - Image Processing and Computer Vision - Communication and Signal Processing - Control and Automation of Mechatronics - Methods, Devices and Systems for Measurement and Monitoring - Engineering of Weapon Systems - Mechanical Engineering and Material Science - Technologies of Processing. The content of this proceedings volume will be of interest to professionals and academics in the fields of Electronic Engineering, Computer Science and Mechanical Engineering.

Two large international conferences on Advances in Engineering Sciences were held in Hong Kong, March 13-15, 2013, under the International MultiConference of Engineers and Computer Scientists (IMECS 2013), and in London, U.K., 3-5 July, 2013, under the World Congress on Engineering 2013 (WCE 2013) respectively. IMECS 2013 and WCE 2013 were organize Sports Engineering and Computer Science contains papers presented at the 2014 International Conference on Sport Science and Computer Science (SSCS 2014), held September 16-17, 2014 in Singapore and at the 2014 International Conference on Biomechanics and Sports Engineering (BSE 2014), held October 24-25, 2014, in Riga, Latvia. The contributions hav

Current Developments in Biotechnology and Bioengineering: Bioprocesses, Bioreactors and Controls provides extensive coverage of new developments, state-of-the-art technologies, and potential future trends, reviewing industrial biotechnology and bioengineering practices that facilitate and enhance the transition of processes from lab to plant scale, which is becoming increasingly important as such transitions continue to grow in frequency. Focusing on industrial bioprocesses, bioreactors for bioprocesses, and controls for bioprocesses, this title reviews industrial practice to identify bottlenecks and propose solutions, highlighting that the optimal control of a bioprocess involves not only maximization of product yield, but also taking into account parameters such as quality assurance and environmental aspects. Describes industrial bioprocesses based on the reaction media Lists the type of bioreactors used for a specific bioprocess/application Outlines the principles of control systems in various bioprocesses

ICNC-FSKD is a premier international forum for scientists and researchers to present the state of the art of data mining and intelligent methods inspired from nature, particularly biological, linguistic, and physical systems, with applications to computers, circuits, systems, control, communications, and more. This is an exciting and emerging interdisciplinary area in which a wide range of theory and methodologies are being investigated and developed to tackle

complex and challenging problems.

This book provides an introduction to the mathematical and algorithmic foundations of data science, including machine learning, high-dimensional geometry, and analysis of large networks. Topics include the counterintuitive nature of data in high dimensions, important linear algebraic techniques such as singular value decomposition, the theory of random walks and Markov chains, the fundamentals of and important algorithms for machine learning, algorithms and analysis for clustering, probabilistic models for large networks, representation learning including topic modelling and non-negative matrix factorization, wavelets and compressed sensing. Important probabilistic techniques are developed including the law of large numbers, tail inequalities, analysis of random projections, generalization guarantees in machine learning, and moment methods for analysis of phase transitions in large random graphs. Additionally, important structural and complexity measures are discussed such as matrix norms and VC-dimension. This book is suitable for both undergraduate and graduate courses in the design and analysis of algorithms for data.

These proceedings represent the work of contributors to the 10th European Conference on Innovation and Entrepreneurship (ECIE 2015), hosted this year by The University of Genoa, Italy on the 17-18 September 2015. The Conference Chair is Prof Luca Beltrametti and the Programme Co-chairs are Prof Renata Paola Dameri, Prof. Roberto Garelli and Prof. Marina Resta, all from the University of Genoa. ECIE continues to develop and evolve. Now in its 10th year the key aim remains the opportunity for participants to share ideas and meet the people who hold them. The scope of papers will ensure an interesting two days. The subjects covered illustrate the wide range of topics that fall into this important and growing area of research. The opening keynote presentation is given by Marco Doria – Mayor of Genoa on the topic of Innovation and entrepreneurship in Genoa: past, present and future. A second keynote will be given by Flavia Marzano from the National board for innovation and Italian digital agenda on the topic of Innovation: New visions not just new technologies. The second day Keynote will be given by Roberto Santoro, President of the European Society of Concurrent Engineering Network (ESoCE Net) on the topic of People Olympics for healthy and active living: A people driven social innovation platform. In addition to the main themes of the conference there are a number of specialist mini tracks on topics including Innovation and strategy, Entrepreneurship education in action, The theory and practice of collaboration in entrepreneurship and Challenges for entrepreneurship and innovation in the 21st Century. With an initial submission of 275 abstracts, after the double blind, peer review process there are 88 Academic research papers, 6 PhD research papers, 1 Masters Research paper, 4 work-in-progress papers and 1 Non-academic paper published in these Conference Proceedings. These papers represent research from Australia, Brazil, Bulgaria, Colombia, Croatia, Cyprus, Czech Republic, Denmark, Egypt, Finland, , France, Germany, Ghana, Greece, Hungary, India, Iran, Ireland, Israel, Italy, Japan, Kazakhstan, , Kuwait, Lithuania, Malaysia, Mexico, Netherlands, New Zealand, Nigeria, Norway, Poland, Portugal, Romania, Romania, Russia, Russian Federation, Saudi Arabia, South Africa, Spain, Sweden, Thailand, Thailand, UK and USA

Have you ever wondered what it is like to work on a nuclear power plant? Robert Dutch worked in the UK's nuclear industry for many years as a scientist and then as a tutor at a nuclear training center. He also holds degrees in theology. Drawing upon his qualifications and experience Robert addresses the controversial issue of nuclear

power from a Christian perspective. In contrast to a negative nuclear narrative often portrayed, he presents a positive nuclear narrative alongside other ways of generating electricity. Be prepared to be challenged to think seriously about nuclear's merits in providing clean, low-carbon electricity.

The background of this research is related to innovative lightweight construction methods for short-term applications realized with highly recyclable materials produced from renewable resources. Specifically, the possibility of using selected paper-based products for design purposes is examined. The main topic discussed regards the state of the art and future potential of joining techniques for assemblies and structures designed with paper-based products. In this context, the preference on paper-tubes for a variety of designs is examined closely. A collection of case studies for selected joining techniques supported with digital tools, fabrication of prototypes and targeted structural experiments demonstrates possibilities and considerations. This book presents the research process and aims to inspire architects, designers and engineers who are eager to discuss on material innovation and the steps that need to be taken to examine the feasibility of such ideas. Evgenia Kanli is an Architect engineer, specialized in Building Technology, a graduate of TU Delft (NL) and the Aristotle University of Thessaloniki (GR). During the period 2017-2020 she performed research at the department of Civil and Environmental engineering at TU Darmstadt (DE).

This two-volume set of LNCS 8572 and LNCS 8573 constitutes the refereed proceedings of the 41st International Colloquium on Automata, Languages and Programming, ICALP 2014, held in Copenhagen, Denmark, in July 2014. The total of 136 revised full papers presented together with 4 invited talks were carefully reviewed and selected from 484 submissions. The papers are organized in three tracks focussing on Algorithms, Complexity, and Games, Logic, Semantics, Automata, and Theory of Programming, Foundations of Networked Computation.

This book constitutes the thoroughly refereed post-conference proceedings of the Third International Symposium on Combinatorial Optimization, ISCO 2014, held in Lisbon, Portugal, in March 2014. The 37 revised full papers presented together with 64 short papers were carefully reviewed and selected from 97 submissions. They present original research on all aspects of combinatorial optimization, such as algorithms and complexity; mathematical programming; operations research; stochastic optimization; graphs and combinatorics.

Materials, Third Edition, is the essential materials engineering text and resource for students developing skills and understanding of materials properties and selection for engineering applications. This new edition retains its design-led focus and strong emphasis on visual communication while expanding its inclusion of the underlying science of materials to fully meet the needs of instructors teaching an introductory course in materials. A design-led approach motivates and engages students in the study of materials science and engineering through real-life case studies and illustrative applications. Highly visual full color graphics facilitate understanding of materials concepts and properties. For instructors, a solutions manual, lecture slides, online image bank, and materials selection charts for use in class handouts or lecture presentations are available at <http://textbooks.elsevier.com>. The number of worked examples has been increased by 50% while the number of standard end-of-chapter exercises in the text has been doubled. Coverage of materials and the environment has

been updated with a new section on Sustainability and Sustainable Technology. The text meets the curriculum needs of a wide variety of courses in the materials and design field, including introduction to materials science and engineering, engineering materials, materials selection and processing, and materials in design. Design-led approach motivates and engages students in the study of materials science and engineering through real-life case studies and illustrative applications Highly visual full color graphics facilitate understanding of materials concepts and properties Chapters on materials selection and design are integrated with chapters on materials fundamentals, enabling students to see how specific fundamentals can be important to the design process For instructors, a solutions manual, lecture slides, online image bank and materials selection charts for use in class handouts or lecture presentations are available at <http://textbooks.elsevier.com> Links with the Cambridge Engineering Selector (CES EduPack), the powerful materials selection software. See www.grantadesign.com for information NEW TO THIS EDITION: Text and figures have been revised and updated throughout The number of worked examples has been increased by 50% The number of standard end-of-chapter exercises in the text has been doubled Coverage of materials and the environment has been updated with a new section on Sustainability and Sustainable Technology

In the past 20 years protein engineering has been used for the production of proteins mostly for biological applications. The incorporation of artificial amino acids and chemical handles into proteins had made possible the design and production of protein-based materials like hybrid inorganic-organic materials, smart/ responsive materials, monodisperse polymers, and nanoscale assemblies. In the current topic, we cover current uses and envision future applications of materials generated using protein engineering and biosynthesis techniques. I would like to acknowledge the U.S. Office of Naval Research for financial support and Dr. Cherise Bernard for her contributions during the early stages of the Research Topic.

The objective of the 2014 International Conference on Computer, Network Security and Communication Engineering (CNSCE2014) is to provide a platform for all researchers in the field of Computer, Network Security and Communication Engineering to share the most advanced knowledge from both academic and industrial world, to communicate with each other about their experience and most up-to-date research achievements, and to discuss issues and future prospects in these fields. As an international conference mixed with academia and industry, CNSCE2014 provides attendees not only the free exchange of ideas and challenges faced by these two key stakeholders and encourage future collaboration between members of these groups but also a good opportunity to make friends with scholars around the world. As the first session of the international conference on CNSCE, it covers topics related to Computer, Network Security and Communication Engineering. CNSCE2014 has attracted many scholars, researchers and practitioners in these fields from various countries. They take this chance to get together, sharing their latest research achievements with each other. It has also achieved great success by its unique characteristics and strong academic atmosphere as well as its authority.

The International Conference of Electronic Engineering and Information Science 2015 (ICEEIS 2015) was held on January 17-18, 2015, Harbin, China. This proceedings volume assembles papers from various researchers, engineers and educators engaged in the fields of electronic

engineering and information science. The papers in this proceedings Engineering dynamics and vibrations has become an essential topic for ensuring structural integrity and operational functionality in different engineering areas. However, practical problems regarding dynamics and vibrations are in many cases handled without success despite large expenditures. This book covers a wide range of topics from the basics to advances in dynamics and vibrations; from relevant engineering challenges to the solutions; from engineering failures due to inappropriate accounting of dynamics to mitigation measures and utilization of dynamics. It lays emphasis on engineering applications utilizing state-of-the-art information.

It is my great pleasure to present the proceedings of the 8th International Conference on Bioinformatics and Biomedical Engineering (ICBBE 2014), held in Suzhou, China, September 20–22, 2014. I would like to take this opportunity to express my sincere thanks to all the authors and participants for their support to our conference. The continuous researches on Bioinformatics and Biomedical Engineering are now of critical significance to the sustainable development of science, education, culture and the society. Especially in modern times, it plays an important role in the interdisciplinary field among the life science, mathematical science, computer science and electronic information science. More and more scholars and practitioners, both within China and abroad, are committed themselves to the cause of this area. With the development of society and technology, a great variety of research results are emerging. Here, ICBBE provides a platform for academic professionals and industry players to exchange the most updated information and achievements in those exciting research areas. On behalf of the organizing committee, I would like to express my gratitude to our sponsors: Wuhan University and Engineering Information Institute. At the same time, we appreciate the contribution from all the paper reviewers and the committee members. It is impossible to organize such a conference without their help. The papers in the proceedings of ICBBE provide details beyond what is possible to be included in an oral presentation and constitute a concise but timely medium for the dissemination of recent research results. I hope that you can find these proceedings interesting, exciting and informative. Thanks again for your support to the ICBBE conference. Prof. Kuo-Chen Chou ICBBE 2014 Committee Chair

This book constitutes the proceedings of the 7th International Conference on Graph Transformations, ICGT 2014, held in York, UK, in July 2014. The 17 papers and 1 invited paper presented were carefully reviewed and selected from numerous submissions. The papers are organized in topical sections on verification, meta-modelling and model transformations, rewriting and applications in biology, graph languages and graph transformation, and applications.

Tools to make hard problems easier to solve. In this book, Sanjoy Mahajan shows us that the way to master complexity is through insight rather than precision. Precision can overwhelm us with information, whereas insight connects seemingly disparate pieces of information into a simple picture. Unlike computers, humans depend on insight. Based on the author's fifteen years of teaching at MIT, Cambridge University, and Olin College, *The Art of Insight in Science and Engineering* shows us how to build insight and find understanding, giving readers tools to help them solve any problem in science and engineering. To master complexity, we can organize it or discard it. *The Art of Insight in Science and Engineering* first teaches the tools for organizing complexity, then distinguishes the two paths for discarding complexity: with and without loss of information. Questions and problems throughout the text help readers master and apply these groups of tools. Armed with this three-part toolchest, and without complicated mathematics, readers can estimate the flight range of birds and planes and the strength of chemical bonds, understand the physics of pianos and xylophones, and explain why skies are blue and sunsets are red. *The Art of Insight in Science and Engineering* will appear in print and online under a Creative Commons Noncommercial Share Alike license.

The Proceedings of First International Conference on Opto-Electronics and Applied Optics 2014, IEM OPTRONIX 2014 presents the research contributions presented in the conference by researchers from both India and abroad. Contributions from established scientists as well as students are included. The book is organized to enable easy access to various topics of interest. The first part includes the Keynote addresses by Phillip Russell, Max Planck Institute of the Light Sciences, Erlangen, Germany and Lorenzo Pavesi, University of Trento, Italy. The second part focuses on the Plenary Talks given by eminent scientists, namely, Azizur Rahman, City University London, London; Bishnu Pal, President, The Optical Society of India; Kamakhya Ghatak, National Institute of Technology, Agartala; Kehar Singh, Former Professor, India Institute of Technology Delhi; Mourad Zghal, SUPCOM, University of Carthage, Tunisia; Partha Roy Chaudhuri, IIT Kharagpur; S K. Bhadra, CSIR-Central Glass and Ceramic Research Institute, Kolkata; Sanjib Chatterjee, Raja Ramanna Centre for Advanced Technology, Indore; Takeo Sasaki, Tokyo University, Japan; Lakshminarayan Hazra, Emeritus Professor, University of Calcutta, Kolkata; Shyam Akashe, ITM University, Gwalior and Vasudevan Lakshminarayanan, University of Waterloo, Canada. The subsequent parts focus on topic-wise contributory papers in Application of Solar Energy; Diffraction Tomography; E.M. Radiation Theory and Antenna; Fibre Optics and Devices; Photonics for Space Applications; Micro-Electronics and VLSI; Nano-Photonics, Bio-Photonics and Bio-Medical Optics; Non-linear Phenomena and Chaos; Optical and Digital Data and Image Processing; Optical Communications and Networks; Optical Design; Opto-Electronic Devices; Opto-Electronic Materials and Quantum Optics and Information Processing.

A side-effect of numerous anthropogenic activities involves unfavourable changes in the natural environment. The acquisition of natural resources, especially fossil fuels, solid waste and wastewater production, as well as emission of gases and particulate matter from industrial plants and means of transport contribute to disturbances in the natural cycles of elements between different parts of the environment. Local changes lead to global effects, changing the composition of atmosphere, its capacity for absorbing the infrared radiation and temperature, which has further repercussions in the form of weather anomalies, melting glaciers, flooding, migration or extinction of species, social problems, etc. These global changes can be mitigated by local remedial actions, simultaneously taken all over the world, including Poland. Only the joint efforts of communities from different countries can be successful in preserving the world as we know it for the future generations. Realisation of this task requires the cooperation of experts across many fields of science, environmental engineering being one of most relevant. It comprises the engineering actions taken to preserve the balance of the natural environment or restore it if degradation has occurred. This monograph presents several key issues related to the actions aimed at mitigating the negative impact on the environment connected with the acquisition and transport of energy, management of municipal and industrial wastes, as well as the impact of the industry on the aquatic and soil environment. This book is dedicated to academics, engineers, and students involved in environmental engineering, who are following the advances in the research on environmental aspects of energy production and waste management.

This book reminds students in junior, senior and graduate level courses in physics, chemistry and engineering of the math they may have forgotten (or learned imperfectly) that is needed to succeed in science courses. The focus is on math actually used in physics, chemistry, and engineering, and the approach to mathematics begins with 12 examples of increasing complexity, designed to hone the student's ability to think in mathematical terms and to apply quantitative methods to scientific problems. Detailed illustrations and links to reference material online help further comprehension. The second edition features new problems and illustrations and features expanded chapters on matrix algebra and differential equations. Use of proven pedagogical techniques developed during the author's 40 years of teaching experience New

practice problems and exercises to enhance comprehension Coverage of fairly advanced topics, including vector and matrix algebra, partial differential equations, special functions and complex variables

Eyewitnesses play an important role in criminal cases when they can identify culprits. Estimates suggest that tens of thousands of eyewitnesses make identifications in criminal investigations each year. Research on factors that affect the accuracy of eyewitness identification procedures has given us an increasingly clear picture of how identifications are made, and more importantly, an improved understanding of the principled limits on vision and memory that can lead to failure of identification. Factors such as viewing conditions, duress, elevated emotions, and biases influence the visual perception experience. Perceptual experiences are stored by a system of memory that is highly malleable and continuously evolving, neither retaining nor divulging content in an informational vacuum. As such, the fidelity of our memories to actual events may be compromised by many factors at all stages of processing, from encoding to storage and retrieval. Unknown to the individual, memories are forgotten, reconstructed, updated, and distorted. Complicating the process further, policies governing law enforcement procedures for conducting and recording identifications are not standard, and policies and practices to address the issue of misidentification vary widely. These limitations can produce mistaken identifications with significant consequences. What can we do to make certain that eyewitness identification convicts the guilty and exonerates the innocent? Identifying the Culprit makes the case that better data collection and research on eyewitness identification, new law enforcement training protocols, standardized procedures for administering line-ups, and improvements in the handling of eyewitness identification in court can increase the chances that accurate identifications are made. This report explains the science that has emerged during the past 30 years on eyewitness identifications and identifies best practices in eyewitness procedures for the law enforcement community and in the presentation of eyewitness evidence in the courtroom. In order to continue the advancement of eyewitness identification research, the report recommends a focused research agenda. Identifying the Culprit will be an essential resource to assist the law enforcement and legal communities as they seek to understand the value and the limitations of eyewitness identification and make improvements to procedures.

Globalization, developments in technology, and new business models are transforming the way products and services are conceived, designed, made, and distributed in the U.S. and around the world. These forces present challenges - lower wages and fewer jobs for a growing fraction of middle-class workers - as well as opportunities for "makers" and aspiring entrepreneurs to create entirely new types of businesses and jobs. Making Value for America examines these challenges and opportunities and offers recommendations for collaborative actions between government, industry, and education institutions to help ensure that the U.S. thrives amid global economic changes and remains a leading environment for innovation. Filled with real-life examples, Making Value for America presents a roadmap to enhance the nation's capacity to pursue opportunities and adapt to transforming value chains by widespread adoption of best practices, a well-prepared and innovative workforce, local innovation networks to support startups and new products, improved flow of capital investments, and infrastructure upgrades.

CSSE2014 proceeding tends to collect the most up-to-date, comprehensive, and worldwide state-of-art knowledge on Computer Science and Software Engineering. All the accepted papers have been submitted to strict peer-review by 2–4 expert referees, and selected based on originality, significance and clarity for the purpose of the conference. The conference program is extremely rich, profound and featuring high-impact presentations of selected papers and additional late-breaking contributions. We sincerely hope that the conference would not only show the participants a broad overview of the latest research results on related fields, but

also provide them with a significant platform for academic connection and exchange. The Technical Program Committee members have been working very hard to meet the deadline of review. The final conference program consists of 126 papers divided into 4 sessions. Analysis, assessment, and data management are core competencies for operation research analysts. This volume addresses a number of issues and developed methods for improving those skills. It is an outgrowth of a conference held in April 2013 at the Hellenic Military Academy and brings together a broad variety of mathematical methods and theories with several applications. It discusses directions and pursuits of scientists that pertain to engineering sciences. It also presents the theoretical background required for algorithms and techniques applied to a large variety of concrete problems. A number of open questions as well as new future areas are also highlighted. This book will appeal to operations research analysts, engineers, community decision makers, academics, the military community, practitioners sharing the current "state-of-the-art," and analysts from coalition partners. Topics covered include Operations Research, Games and Control Theory, Computational Number Theory and Information Security, Scientific Computing and Applications, Statistical Modeling and Applications, Systems of Monitoring and Spatial Analysis.

International Conference on Computer Science and Software Engineering (CSSE 2014)DEStech Publications, Inc

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