

## System Analysis Design Awad

Applied Organizational Communication  
Continuous Authentication Using Biometrics: Data, Models, and Metrics  
Reliability Engineering and Risk Analysis  
Knowledge Management  
Systems Analysis and Design  
Managing Information & Systems  
Information Science and Applications (ICISA) 2016  
Analysis and Design of Information Systems  
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Structural Analysis and Design of Process Equipment  
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Comprehensive Computer and Languages  
Efficient Learning Machines

## Applied Organizational Communication

Applied Organizational Communication provides a current, in-depth analysis of the theories and practices critical to understanding organizational communication concepts in a global environment. Exploring the diverse communication challenges in today's organizations, this text: Explains the impact of critical environmental influences on all levels; Provides extensive discussion of teams, leadership, technology, listening, and interpersonal communication; Offers current analysis, utilizing a broad base of information and research; and Establishes links between organizational communication and perceptions, theory, networks, and symbolic behavior. Building on the successful foundation of the previous editions, this third edition has been thoroughly updated and revised to reflect the most current organizational communication theory and research. Features of this edition include: Extensive real life examples and experiences  
Grounding in transactional communication and advanced systems approaches  
Macro and micro analyses of key topics and issues  
As an accessible and practical examination of organizational communication, this text is intended for use in organizational communication, leadership, organizational development, and organizational intervention courses at the advanced undergraduate and graduate level.

## **Continuous Authentication Using Biometrics: Data, Models, and Metrics**

This briefer text gives students an overview of managerial and technical concepts of e-commerce. The material follows a life cycle approach to show students the entire process of e-commerce from "vision" or strategic planning to "fulfillment" for delivery of products and services with the goal of customer satisfaction.

## **Reliability Engineering and Risk Analysis**

## **Knowledge Management**

This book covers all you need to know to model and design software applications from use cases to software architectures in UML and shows how to apply the COMET UML-based modeling and design method to real-world problems. The author describes architectural patterns for various architectures, such as broker, discovery, and transaction patterns for service-oriented architectures, and addresses software quality attributes including maintainability, modifiability, testability, traceability, scalability, reusability, performance, availability, and security. Complete case studies illustrate design issues for different software architectures: a banking system for client/server architecture, an online shopping system for service-oriented architecture, an emergency monitoring system for component-based software architecture, and an automated guided vehicle for real-time software architecture. Organized as an introduction followed by several short, self-contained chapters, the book is perfect for senior undergraduate or graduate courses in software engineering and design, and for experienced software engineers wanting a quick reference at each stage of the analysis, design, and development of large-scale software systems.

## **Systems Analysis and Design**

Hierarchical design methods were originally introduced for the design of digital ICs, and they appeared to provide for significant advances in design productivity, Time-to-Market, and first-time right design. These concepts have gained increasing importance in the semiconductor industry in recent years. In the course of time, the supportive quality of hierarchical methods and their advantages were confirmed. System Level Hardware/Software Co-design: An Industrial Approach demonstrates the applicability of hierarchical methods to hardware / software codesign, and mixed analogue / digital design following a similar approach. Hierarchical design methods provide for high levels of design support, both in a qualitative and a quantitative sense. In the qualitative sense, the presented methods support all phases in the product life cycle of electronic products, ranging from requirements analysis to application support. Hierarchical methods furthermore

allow for efficient digital hardware design, hardware / software codesign, and mixed analogue / digital design, on the basis of commercially available formalisms and design tools. In the quantitative sense, hierarchical methods have prompted a substantial increase in design productivity. System Level Hardware/Software Co-design: An Industrial Approach reports on a six year study during which time the number of square millimeters of normalized complexity an individual designer contributed every week rose by more than a factor of five. Hierarchical methods therefore enabled designers to keep track of the ever increasing design complexity, while effectively reducing the number of design iterations in the form of redesigns. System Level Hardware/Software Co-design: An Industrial Approach is the first book to provide a comprehensive, coherent system design methodology that has been proven to increase productivity in industrial practice. The book will be of interest to all managers, designers and researchers working in the semiconductor industry.

### **Managing Information & Systems**

Machine learning techniques provide cost-effective alternatives to traditional methods for extracting underlying relationships between information and data and for predicting future events by processing existing information to train models. Efficient Learning Machines explores the major topics of machine learning, including knowledge discovery, classifications, genetic algorithms, neural networking, kernel methods, and biologically-inspired techniques. Mariette Awad and Rahul Khanna's synthetic approach weaves together the theoretical exposition, design principles, and practical applications of efficient machine learning. Their experiential emphasis, expressed in their close analysis of sample algorithms throughout the book, aims to equip engineers, students of engineering, and system designers to design and create new and more efficient machine learning systems. Readers of Efficient Learning Machines will learn how to recognize and analyze the problems that machine learning technology can solve for them, how to implement and deploy standard solutions to sample problems, and how to design new systems and solutions. Advances in computing performance, storage, memory, unstructured information retrieval, and cloud computing have coevolved with a new generation of machine learning paradigms and big data analytics, which the authors present in the conceptual context of their traditional precursors. Awad and Khanna explore current developments in the deep learning techniques of deep neural networks, hierarchical temporal memory, and cortical algorithms. Nature suggests sophisticated learning techniques that deploy simple rules to generate highly intelligent and organized behaviors with adaptive, evolutionary, and distributed properties. The authors examine the most popular biologically-inspired algorithms, together with a sample application to distributed datacenter management. They also discuss machine learning techniques for addressing problems of multi-objective optimization in which solutions in real-world systems are constrained and evaluated based on how well they perform with respect to multiple objectives in aggregate. Two chapters on support vector machines and their extensions focus on recent improvements to the classification and regression techniques at the core of machine learning.

## **Information Science and Applications (ICISA) 2016**

User authentication is the process of verifying whether the identity of a user is genuine prior to granting him or her access to resources or services in a secured environment. Traditionally, user authentication is performed statically at the point of entry of the system; however, continuous authentication (CA) seeks to address the shortcomings of this method by providing increased session security and combating insider threat. Continuous Authentication Using Biometrics: Data, Models, and Metrics presents chapters on continuous authentication using biometrics that have been contributed by the leading experts in this recent, fast growing research area. These chapters collectively provide a thorough and concise introduction to the field of biometric-based continuous authentication. The book covers the conceptual framework underlying continuous authentication and presents detailed processing models for various types of practical continuous authentication applications.

## **Analysis and Design of Information Systems**

This book discusses dynamic modeling, simulation, and control strategies for Photovoltaic (PV) stand-alone systems during variation of environmental conditions. Moreover, the effectiveness of the implemented Maximum Power Point Tracking (MPPT) techniques and the employed control strategy are evaluated during variations of solar irradiance and cell temperature. The simulation results are based on the reliability of the MPPT techniques applied in extracting the maximum power from the PV system during the rapid variation of the environmental conditions. The authors review two MPPT techniques implemented in PV systems, namely the perturb and observe (P&O) MPPT Technique and the Incremental Conductance (InCond) MPPT technique. These two MPPT techniques were simulated by the MATLAB/Simulink and the results response of the PV array from voltage, current, and power are compared to the effect of solar irradiation and temperature change.

## **Software Modeling and Design**

This book contains the refereed proceedings of the 13th International Conference on Business Information Systems, BIS 2010, held in Berlin, Germany, in May 2010. The 25 revised full papers were carefully reviewed and selected from more than 80 submissions. Following the theme of the conference "Future Internet Business Services", the contributions detail recent research results and experiences and were grouped in eight sections on search and knowledge sharing, data and information security, Web experience modeling, business processes and rules, services and repositories, data mining for processes, visualization in business process management, and enterprise resource planning and supply chain management.

## **Concrete Formwork Systems**

Recently, cryptology problems, such as designing good cryptographic systems and analyzing them, have been challenging researchers. Many algorithms that take advantage of approaches based on computational intelligence techniques, such as genetic algorithms, genetic programming, and so on, have been proposed to solve these issues. Implementing Computational Intelligence Techniques for Security Systems Design is an essential research book that explores the application of computational intelligence and other advanced techniques in information security, which will contribute to a better understanding of the factors that influence successful security systems design. Featuring a range of topics such as encryption, self-healing systems, and cyber fraud, this book is ideal for security analysts, IT specialists, computer engineers, software developers, technologists, academicians, researchers, practitioners, and students.

## **Deep Learning in Computer Vision**

An introduction and explanation of pragmatic methods and techniques for reliability and risk studies, and a discussion of their uses and limitations. It features computer software that illustrates numerous examples found in the book, offering to help engineers and students solve problems. There is a module on Bayesian estimation. The computer disk is written in Visual Basic and is compatible with Microsoft Excel spreadsheets.

## **Business Information Systems**

Praise for the first edition: "This excellent text will be useful to every system engineer (SE) regardless of the domain. It covers ALL relevant SE material and does so in a very clear, methodical fashion. The breadth and depth of the author's presentation of SE principles and practices is outstanding." –Philip Allen This textbook presents a comprehensive, step-by-step guide to System Engineering analysis, design, and development via an integrated set of concepts, principles, practices, and methodologies. The methods presented in this text apply to any type of human system -- small, medium, and large organizational systems and system development projects delivering engineered systems or services across multiple business sectors such as medical, transportation, financial, educational, governmental, aerospace and defense, utilities, political, and charity, among others. Provides a common focal point for "bridging the gap" between and unifying System Users, System Acquirers, multi-discipline System Engineering, and Project, Functional, and Executive Management education, knowledge, and decision-making for developing systems, products, or services Each chapter provides definitions of key terms, guiding principles, examples, author's notes, real-world examples, and exercises, which highlight and reinforce key SE&D concepts and practices Addresses concepts employed in Model-Based Systems Engineering (MBSE), Model-Driven Design (MDD), Unified Modeling Language (UML) / Systems Modeling Language (SysML), and Agile/Spiral/V-Model Development such

as user needs, stories, and use cases analysis; specification development; system architecture development; User-Centric System Design (UCSD); interface definition & control; system integration & test; and Verification & Validation (V&V) Highlights/introduces a new 21st Century Systems Engineering & Development (SE&D) paradigm that is easy to understand and implement. Provides practices that are critical staging points for technical decision making such as Technical Strategy Development; Life Cycle requirements; Phases, Modes, & States; SE Process; Requirements Derivation; System Architecture Development, User-Centric System Design (UCSD); Engineering Standards, Coordinate Systems, and Conventions; et al. Thoroughly illustrated, with end-of-chapter exercises and numerous case studies and examples, Systems Engineering Analysis, Design, and Development, Second Edition is a primary textbook for multi-discipline, engineering, system analysis, and project management undergraduate/graduate level students and a valuable reference for professionals.

### **Information Security Practices**

-- Instructor's manual. -- Test bank (includes RHT est version 2.1 2 part; pt1: User's instructions. pt2: Reference and troubleshooting.).

### **Transport Infrastructure and Systems**

### **Software Testing and Quality Assurance**

### **Mechanism, Machine, Robotics and Mechatronics Sciences**

A superior primer on software testing and quality assurance, from integration to execution and automation This important new work fills the pressing need for a user-friendly text that aims to provide software engineers, software quality professionals, software developers, and students with the fundamental developments in testing theory and common testing practices. Software Testing and Quality Assurance: Theory and Practice equips readers with a solid understanding of: Practices that support the production of quality software Software testing techniques Life-cycle models for requirements, defects, test cases, and test results Process models for units, integration, system, and acceptance testing How to build test teams, including recruiting and retaining test engineers Quality Models, Capability Maturity Model, Testing Maturity Model, and Test Process Improvement Model Expertly balancing theory with practice, and complemented with an abundance of pedagogical tools, including test questions, examples, teaching suggestions, and chapter summaries, this book is a valuable, self-contained tool for professionals and an ideal introductory text for courses in software testing, quality

assurance, and software engineering.

### **Micro/Nanolithography**

The latest practical applications of electricity market equilibrium models in analyzing electricity markets Electricity market deregulation is driving the power energy production from a monopolistic structure into a competitive market environment. The development of electricity markets has necessitated the need to analyze market behavior and power. Restructured Electric Power Systems reviews the latest developments in electricity market equilibrium models and discusses the application of such models in the practical analysis and assessment of electricity markets. Drawing upon the extensive involvement in the research and industrial development of the leading experts in the subject area, the book starts by explaining the current developments of electrical power systems towards smart grids and then relates the operation and control technologies to the aspects in electricity markets. It explores: The problems of electricity market behavior and market power Mathematical programs with equilibrium constraints (MPEC) and equilibrium problems with equilibrium constraints (EPEC) Tools and techniques for solving the electricity market equilibrium problems Various electricity market equilibrium models State-of-the-art techniques for computing the electricity market equilibrium problems The application of electricity market equilibrium models in assessing the economic benefits of transmission expansions for market environments, forward and spot markets, short-term power system security, and analysis of reactive power impact Also featured are computational resources to allow readers to develop algorithms on their own, as well as future research directions in modeling and computational techniques in electricity market analysis. Restructured Electric Power Systems is an invaluable reference for electrical engineers and power system economists from power utilities and for professors, postgraduate students, and undergraduate students in electrical power engineering, as well as those responsible for the design, engineering, research, and development of competitive electricity markets and electricity market policy.

### **Object-oriented Technology for Real-time Systems**

This book presents the OCTOPUS method, providing a systematic and effective approach for developing object-oriented software for embedded real-time systems. The method is based on the popular OMT and Fusion methods, but also embodies common practice found in real-time systems. It applies proven object-oriented techniques, while matching the specific needs of real-time systems, such as concurrency, synchronization, communication, handling of interrupts, hardware interfaces and end-to-end response times. The method defines an incremental development process with well integrated phases and clearly linked components, covering requirements specification, system architecture and subsystem analysis/design. The book includes transition from design to implementation and features process priorities and timing analysis. Two extensive case studies demonstrate this in practice.

## **System Engineering Analysis, Design, and Development**

### **Advances in Network Systems**

This book introduces novel research targeting technical aspects of protecting information security and establishing trust in the digital space. New paradigms, and emerging threats and solutions are presented in topics such as application security and threat management; modern authentication paradigms; digital fraud detection; social engineering and insider threats; cyber threat intelligence; intrusion detection; behavioral biometrics recognition; hardware security analysis. The book presents both the important core and the specialized issues in the areas of protection, assurance, and trust in information security practice. It is intended to be a valuable resource and reference for researchers, instructors, students, scientists, engineers, managers, and industry practitioners.

### **Systems Analysis and Design**

Offers insights on currently-used concrete formwork structures, from classification, system components and materials' properties to selection and construction requirements and procedures, while considering product quality, labour, safety and economic factors throughout.

### **Building Expert Systems**

This book provides the reader with a comprehensive selection of cutting-edge algorithms, technologies, and applications. The volume offers new insights into a range of fundamentally important topics in network architectures, network security, and network applications. It serves as a reference for researchers and practitioners by featuring research contributions exemplifying research done in the field of network systems. In addition, the book highlights several key topics in both theoretical and practical aspects of networking. These include wireless sensor networks, performance of TCP connections in mobile networks, photonic data transport networks, security policies, credentials management, data encryption for network transmission, risk management, live TV services, and multicore energy harvesting in distributed systems.

### **Electronic Commerce**

Adopting a UML object-oriented approach, three recognized SAD experts address the theory and the practice needed to excel in this dynamic and ever-growing field. Each chapter describes one part of the SAD process, along with detailed

examples and exercises designed to help you practice what you've learned.

### **Petri Nets in Science and Engineering**

### **System Level Hardware/Software Co-Design**

Focusing on the integrated understanding of the role of systems within the business, organizationally and strategically, this book demonstrates theory by including extensive business examples, and by ending each chapter with international case studies. Topics covered include: the nature of organizations management roles and functions information as a resource systems approaches different information systems and what they can achieve structural and cultural fit and information systems change management and information systems strategic business and information systems management. Combining readability with theoretical concepts, this book is suitable for both advanced undergraduate and MBA/Masters students.

### **Human Resources Management**

This fifth edition continues to build upon previous issues with its hands-on approach to systems analysis and design with an even more in-depth focus on the core set of skills that all analysts must possess. Dennis continues to capture the experience of developing and analysing systems in a way that readers can understand and apply and develop a rich foundation of skills as a systems analyst.

### **Elements of Systems Analysis**

Designing reliable, complex and dependable software systems is a continuous challenge to the software engineering community. The contribution of this book is two fold: bring to light a large body of knowledge on this issue and proposing basic techniques to build secure high-performance software systems. The first part focuses on performance requirements analysis for distributed software systems. Techniques for analyzing and testing software performance requirements are introduced. The second part proposes a model-driven perspective on secure software engineering. A systematic security engineering process is presented, which starts in the early stages of the software development process and spans the entire software lifecycle.

### **Building Secure and High-Performance Software Systems**

Transport Infrastructure Asset management in transport infrastructure, financial viability of transport engineering projects/ Life cycle Cost Analysis, Life-Cycle Assessment and Sustainability Assessment of transport infrastructure/ Infrastructures financing and pricing with equity appraisal, operation optimization and energy management/ Low-Volume roads: planning, maintenance, operations, environmental and social issues/ Public-Private Partnership (PPP) experience in transport infrastructure in different countries and economic conditions/ Airport Pavement Management Systems, runway design and maintenance/ Port maintenance and development issues, technology relating to cargo handling, landside access, cruise operations/ Infrastructure Building Information Modelling (I-BIM) / Pavement design and innovative bituminous materials/ Recycling and re-use in road pavements, environmentally sustainable technologies/ Stone pavements, ancient roads and historic railways/ Cementitious stabilization of materials used in the rehabilitation of transportation infrastructure. Transport Systems Sustainable transport and the environment protection including green vehicles/ Urban transport, land use development, spatial and transport planning/ Bicycling, bike, bike-sharing systems, cycling mobility/ Human factor in transport systems/ Intelligent Mobility: emerging technologies to enable the smarter movement of people and goods/Airport landside: access roads, parking facilities, terminal facilities, aircraft apron and the adjacent taxiway/ Transportation policy, planning and design, modelling and decision making/ Transport economics, finance and pricing issues, optimization problems, equity appraisal/ Road safety impact assessments, road safety audits, the management of road network safety and safety inspections/ Tunnels and underground structures: preventing incidents-accidents mitigating their effects for both people and goods/ Traffic flow characteristics, traffic control devices, work zone traffic control, highway capacity and quality of service/ Track-vehicle interactions in railway systems, capacity analysis of railway networks/ Risk assessment and safety in air and railway transport, reliability aspects/ Maritime transport and inland waterways transport research/ Intermodal freight transport: terminals and logistics.

### **Implementing Computational Intelligence Techniques for Security Systems Design**

This text will fit in the MIS majors course for Knowledge Management and for some Decision Support Systems Courses. The KM subject matter is a subset of content taught in the Decision Support Systems course. This 16 chapter text is about knowledge how to capture it, how to transfer it, how to share it, and how to manage it. Awad takes students through a process-oriented examination of the topic, striking a balance between the behavioral and technical aspects of knowledge management and use it.

### **Restructured Electric Power Systems**

The recent explosion in complex global networking architectures has spurred a concomitant rise in the need for robust information security. Further, as computing power increases exponentially with every passing year, so do the number of

proposed cryptographic schemata for improving and ensuring the encryption integrity of cutting-edge infosec protocols. Improving Information Security Practices through Computational Intelligence presents an overview of the latest and greatest research in the field, touching on such topics as cryptology, stream ciphers, and intrusion detection, and providing new insights to an audience of students, teachers, and entry-level researchers working in computational intelligence, information security, and security engineering.

### **Systems Analysis & Design**

Discover a practical, streamlined, and updated approach to information systems development with Tilley/Rosenblatt's SYSTEMS ANALYSIS AND DESIGN, 11E. Expanded coverage of emerging technologies, such as agile methods, cloud computing, and mobile applications, complements this book's traditional approaches to systems analysis and design. A wealth of real-world examples emphasizes critical thinking and IT skills in a dynamic, business-related environment. You will find numerous projects, insightful assignments, and helpful end-of-chapter exercises to help you refine the IT skills you need for success in today's intensely competitive business world. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.

### **Improving Information Security Practices through Computational Intelligence**

The main objective of this book is to give proficient people a comprehensive review of up-to-date global improvements in hypothetical and experimental evidences, perspectives and prospects of some newsworthy instrumentation and its numerous technological applications for a wide range of lithographic fabrication techniques. The present theme of this book is concomitant with the lithographic ways and means of deposition, optimization parameters and their wide technological applications. This book consists of six chapters comprehending with eminence of lithography, fabrication and reproduction of periodic nanopyramid structures using UV nanoimprint lithography for solar cell applications, large-area nanoimprint lithography and applications, micro-/nanopatterning on polymers, OPC under immersion lithography associated to novel luminescence applications, achromatic Talbot lithography (ATL) and the soft X-ray interference lithography. Individual chapters provide a base for a wide range of readers from different fields, students and researchers, who may be doing research pertinent to the topics discussed in this book and find basic as well as advanced principles of designated subjects related to these phenomena explained plainly. The book contains six chapters by experts in different fields of lithographic fabrication and technology from over 15 research institutes across the globe.

### **Systems Analysis and Design**

Still the only book offering comprehensive coverage of the analysis and design of both API equipment and ASME pressure vessels This edition of the classic guide to the analysis and design of process equipment has been thoroughly updated to reflect current practices as well as the latest ASME Codes and API standards. In addition to covering the code requirements governing the design of process equipment, the book supplies structural, mechanical, and chemical engineers with expert guidance to the analysis and design of storage tanks, pressure vessels, boilers, heat exchangers, and related process equipment and its associated external and internal components. The use of process equipment, such as storage tanks, pressure vessels, and heat exchangers has expanded considerably over the last few decades in both the petroleum and chemical industries. The extremely high pressures and temperatures involved with the processes for which the equipment is designed makes it potentially very dangerous to property and life if the equipment is not designed and manufactured to an exacting standard. Accordingly, codes and standards such as the ASME and API were written to assure safety. Still the only guide covering the design of both API equipment and ASME pressure vessels, *Structural Analysis and Design of Process Equipment, 3rd Edition*: Covers the design of rectangular vessels with various side thicknesses and updated equations for the design of heat exchangers Now includes numerical vibration analysis needed for earthquake evaluation Relates the requirements of the ASME codes to international standards Describes, in detail, the background and assumptions made in deriving many design equations underpinning the ASME and API standards Includes methods for designing components that are not covered in either the API or ASME, including ring girders, leg supports, and internal components Contains procedures for calculating thermal stresses and discontinuity analysis of various components *Structural Analysis and Design of Process Equipment, 3rd Edition* is an indispensable tool-of-the-trade for mechanical engineers and chemical engineers working in the petroleum and chemical industries, manufacturing, as well as plant engineers in need of a reference for process equipment in power plants, petrochemical facilities, and nuclear facilities.

### **3D Printing Applications in Cardiovascular Medicine**

This volume contains the Proceedings of the First International Congress for the Advancement of Mechanism, Machine, Robotics and Mechatronics Sciences (ICAMMRMS-2017), held in Beirut, Lebanon, October 2017. The book consists of twenty papers in six different fields covering multiple angles of machine and robotics sciences: mechanical design, control, structural synthesis, vibration study, and manufacturing. This volume is of interest to mechanical as well as electrical engineers.

### **Systems Analysis and Design**

This book contains selected papers from the 7th International Conference on Information Science and Applications (ICISA 2016) and provides a snapshot of the latest issues encountered in technical convergence and convergences of security

technology. It explores how information science is core to most current research, industrial and commercial activities and consists of contributions covering topics including Ubiquitous Computing, Networks and Information Systems, Multimedia and Visualization, Middleware and Operating Systems, Security and Privacy, Data Mining and Artificial Intelligence, Software Engineering, and Web Technology. The contributions describe the most recent developments in information technology and ideas, applications and problems related to technology convergence, illustrated through case studies, and reviews converging existing security techniques. Through this volume, readers will gain an understanding of the current state-of-the-art information strategies and technologies of convergence security. The intended readers are researchers in academia, industry and other research institutes focusing on information science and technology.

### **Performance Analysis of Photovoltaic Systems with Energy Storage Systems**

Alan Dennis' 5th Edition of Systems Analysis and Design continues to build upon previous issues with its hands-on approach to systems analysis and design with an even more in-depth focus on the core set of skills that all analysts must possess. Dennis continues to capture the experience of developing and analyzing systems in a way that readers can understand and apply and develop a rich foundation of skills as a systems analyst.

### **Structural Analysis and Design of Process Equipment**

### **Systems Analysis and Design with UML**

3D Printing Applications in Cardiovascular Medicine addresses the rapidly growing field of additive fabrication within the medical field, in particular, focusing on cardiovascular medicine. To date, 3D printing of hearts and vascular systems has been largely reserved to anatomic reconstruction with no additional functionalities. However, 3D printing allows for functional, physiologic and bio-engineering of products to enhance diagnosis and treatment of cardiovascular disease. This book contains the state-of-the-art technologies and studies that demonstrate the utility of 3D printing for these purposes. Addresses the novel technology and cardiac and vascular application of 3D printing Features case studies and tips for applying 3D technology into clinical practice Includes an accompanying website that provides 3D examples from cardiovascular clinicians, imagers, computer science and engineering experts

### **Comprehensive Computer and Languages**

This book presents a collection of chapters from different areas of science and engineering, where Petri Nets have been

shown to be a useful tool for the design and modeling of the problems that arise in such fields. The areas covered in this book include manufacturing systems, authentication and cyber-security, computer architectures, mechanical systems, process mining, control theory and time analysis. The main focus of the chapters was to be illustrative, to help the development of intuitive ideas that may guide the reader to adopt Petri Nets in their scientific or engineering work. However, there are other chapters with deep mathematical basis such as time analysis. Whenever possible, models, graphics and examples illustrate the developed concepts.

### **Efficient Learning Machines**

Deep learning algorithms have brought a revolution to the computer vision community by introducing non-traditional and efficient solutions to several image-related problems that had long remained unsolved or partially addressed. This book presents a collection of eleven chapters where each individual chapter explains the deep learning principles of a specific topic, introduces reviews of up-to-date techniques, and presents research findings to the computer vision community. The book covers a broad scope of topics in deep learning concepts and applications such as accelerating the convolutional neural network inference on field-programmable gate arrays, fire detection in surveillance applications, face recognition, action and activity recognition, semantic segmentation for autonomous driving, aerial imagery registration, robot vision, tumor detection, and skin lesion segmentation as well as skin melanoma classification. The content of this book has been organized such that each chapter can be read independently from the others. The book is a valuable companion for researchers, for postgraduate and possibly senior undergraduate students who are taking an advanced course in related topics, and for those who are interested in deep learning with applications in computer vision, image processing, and pattern recognition.

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