Optimizing Decision Making In The Apparel Supply Chain Using Artificial Intelligence Ai From Production To Retail Woodhead Publishing Series In Textiles

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Designing Apparel for Consumers - M-E Faust 2014-04-03
Given its importance for consumer satisfaction and thus brand success, apparel fit is a major challenge for retailers and brands across the industry.

Consequently there have been major developments in sizing research and how it can be used in apparel design. This book reviews how these developments are affecting clothing design for different groups of consumers. Part one identifies various aspects of body shape, size, volume and the psychological aspects of designing apparel. This section covers topics such as body shape and its influence on apparel size and consumer choices, sizing systems, body shape and weight distribution (with a discussion of the Body Volume Index (BVI) versus the Body Mass Index (BMI)), and the psychological and sociological factors influencing consumers' choice of apparel. Part two outlines the challenges in understanding the sizing and shape requirements and choices of particular customer groups. This section discusses apparel designed for infants and children, older consumers, overweight and obese consumers, plus size Black and Latino women, apparel design for Asian and Caucasian ethnic groups, sizing requirements for male apparel, maternity apparel, intimate apparel for varying body shapes, and the challenges of designing headwear to fit the size and shape of Western and Asian populations. Designing apparel for consumers provides an invaluable reference for apparel designers, manufacturers, and R&D managers in the textile industry, as well as postgraduate students and academic researchers in textiles. Reviews developments affecting clothing design for different groups of consumers Identifies various aspects of body shape, size, volume and the psychological aspects of designing apparel Outlines the challenges in understanding sizing and shape requirements and choices of particular customer groups

Composite Nonwoven Materials - Dipayan Das 2014-03-14

Composite nonwoven materials are versatile materials with a variety of applications,

including hygiene, medicine and filtration. This important book provides a technical resource for professionals and academics in the field. It explores these materials in terms of fiber types used, manufacturing processes, structure, and physical properties. The first part of the book focuses on the use of natural and synthetic fibers in composite nonwovens, discusses their structure in terms of fiber packing and alignment, and their physical properties. Further chapters deal with the practical applications of composite nonwoven materials. Hygiene applications, such as diapers, female sanitary products, incontinence pads, and wipes are covered, as well as composite nonwoven-based medical products and filters. Composite Nonwoven Materials is an ideal reference for R&D managers in the textile industry and academic researchers in textile science. Systematic and comprehensive information on composite nonwovens Critical review of progress in research and development on composite nonwovens Comment on future research direction and ideas for product development

Electrospun Nanofibers - Mehdi Afshari 2016-09-13 Electrospun Nanofibers covers advances in the electrospinning process including characterization, testing and modeling of electrospun nanofibers, and electrospinning for particular fiber types and applications. Electrospun Nanofibers offers systematic and comprehensive coverage for academic researchers, industry professionals, and postgraduate students working in the field of fiber science. Electrospinning is the most commercially successful process for the production of nanofibers and rising demand is driving research and development in this field. Rapid progress is being made both in terms of the electrospinning process and in the production of nanofibers with superior chemical and physical properties. Electrospinning is becoming more efficient and

more specialized in order to produce particular fiber types such as bicomponent and composite fibers, patterned and 3D nanofibers, carbon nanofibers and nanotubes, and nanofibers derived from chitosan. Provides systematic and comprehensive coverage of the manufacture, properties, and applications of nanofibers Covers recent developments in nanofibers materials including electrospinning of bicomponent, chitosan, carbon, and conductive fibers Brings together expertise from academia and industry to provide comprehensive, up-to-date information on nanofiber research and development Offers systematic and comprehensive coverage for academic researchers, industry professionals, and postgraduate students working in the field of fiber science

Performance Testing of Textiles - Lijing Wang 2016-06-17

Performance Testing of Textiles: Methods, Technology and Applications examines the developed and established methodology for testing performance textiles, also summarizing the material properties for advanced applications. This book emphasizes reproducible tests using commonly used experimental methods reported in scientific literature and internationally recognized testing standards to quantify textile material properties and performance. After an introductory explanation of key fiber and textile properties and testing methods, the book summarizes electronic testing theories, technologies, and instrumentation for performance textiles. Also covered are aspects of military textile, medical textile, sportswear, smart composites, and wearable textiles which, as examples, present the latest research and results related to performance textile testing and applications. Offers up-to-date coverage of new and advanced performance testing techniques for the fiber and textile industries Explores key fiber and textile properties Summarizes electronic testing

theories, technologies, and instrumentation for performance textiles Includes contributions from an international team of authors edited by an expert in the field

Fabric Structures in Architecture - J Llorens 2015-03-28

Fabric Structures in Architecture covers the varying ways textiles and their properties are used in building construction, with particular focus given to tensile structures. The text begins with the fundamental principles of textiles, including the origins of fabric architecture, then progressing to a discussion of the modern textiles of today. It covers relevant textile materials and their properties, including coatings and membranes. In addition, a range of design considerations are discussed, with detailed information on installation and failure modes. A series of case studies from around the world accompany the discussion, illustrating the applications of textiles in architecture. Offers key coverage of the fundamental principles, from the origins of fabric architecture to modern textile Provides analysis of relevant textile materials and their properties, including coatings and membranes Contains expert insights in to the applications of textiles in architecture, presenting a series of relevant case-studies from around the world

Advances in Smart Medical Textiles - Lieva van Langenhove 2015-12-02

Advances in Smart Medical Textiles: Treatments and Health Monitoring provides comprehensive coverage on smart textiles, the emerging and important materials that are finding applications in the fields of medicine and healthcare. The book explores the range of smart textiles available for use in medicine and the transfer of these innovative technologies into medical applications. Early chapters survey various smart fibers, fabrics, and finishes, while subsequent sections focus on the role of smart textiles in treating patients,

from wound care to rehabilitation, and the use of textile-based sensors and wearable electronics for monitoring patient health. Provides a comprehensive review of the materials used in smart medical textiles Analyzes the application of these textiles in medical treatments and sensors for health monitoring Covers the range of international research in the field and keeps focus on the needs of the textile industry

Handbook of Technical Textiles - A. Richard Horrocks 2015-12-01

The second edition of Handbook of Technical Textiles, Volume 1: Technical Textile Processes provides readers with a comprehensive understanding of the latest advancements in technical textiles. With revised and updated coverage, including several new chapters, this volume reviews recent developments and technologies in the field, beginning with an overview of the technical textiles industry that includes coverage of technical fibers and yarns, weaving, spinning, knitting, and nonwoven production. Subsequent sections include discussions on finishing, coating, and the coloration of technical textiles. Provides a comprehensive handbook for all aspects of technical textiles Presents updated, detailed coverage of processes, fabric structure, and applications An ideal resource for those interested in high-performance textiles, textile processes, textile processing, and textile applications Contains contributions from many of the original, recognized experts from the first edition who update their respective chapters

Clothing for Children and Teenagers - Norsaadah Zakaria 2016-06-07

Clothing for Children and Teenagers: Anthropometry, Sizing and Fit addresses the complexities of developing size specifications for clothing aimed at seven to seventeen year olds. Children and teenagers experience rapid physical growth and alterations in body shape as they

develop—changes that pose significant challenges in creating apparel sizing systems. The book begins by introducing the principles of apparel fit and sizing systems. Drawing on the author's own fieldwork, it goes on to discuss methods of conducting anthropometric surveys in children and teenagers, and techniques for analyzing the resulting data in order to produce successful sizing systems. Introduces the principles of apparel fit and sizing systems, and discusses methods of conducting anthropometric surveys in children and teenagers Offers systematic and comprehensive coverage of the complexities associated with clothing for children and teenagers Reviews techniques in analysis and classification of children and teenagers' body shapes and sizes Covers the development, designation, and validation of an apparel sizing system for children and teenagers

Industrial Cutting of Textile Materials - Ineta Vilumsone-Nemes 2018-03-09

Industrial Cutting of Textile Materials, Second Edition, is a comprehensive guide to cutting room operations, offering step-by-step information on processes, technologies and best practice. This new edition is updated to present the latest advances in automated cutting technology, including advanced spreading methods and machines, advanced knife cutting systems, and pattern matching methods processing garment, home and technical textiles. Drawing on her extensive practical experience, the author begins by reviewing initial steps, such as unloading, sorting and quality control of materials, before discussing subsequent operations, including lay planning and marker making, manual and automated spreading and cutting, fusing of cut components, and final work operations such as sorting cut components for further joining. The book also covers manual and advanced automated marker making, spreading and cutting methods for more

intricate fabrics, such as striped fabrics and fabrics with check, motif and border patterns, narrow lace and fabrics with pile. With essential information on cutting room operations and best practice, this book provides engineers, technologists and managers with the knowledge they need to maximize accuracy and efficiency, to control production processes effectively, and to improve product quality. The book also enables academics and students engaged in the field of textile and clothing technology to gain a solid understanding of cutting room procedures. Provides production managers, technologists, and other manufacturing specialists of textile goods the knowledge they need in order to increase raw material utilization and with it reduce productions costs, maximise cutting process efficiency, control production processes effectively, and improve ready product quality. Describes spreading and cutting of garment, home and technical textiles Includes guidance on best practice dealing with intricate fabrics Enables readers to benefit from the latest advances in automated textile cutting technologies

Geotextiles - Robert Koerner 2016-02-11

Geotextiles: From Design to Applications presents valuable information on the high performance fabrics used in soil separation, drainage, filtration, reinforcement, and cushioning. These polymeric materials offer solutions for geoengineering and other civil engineering specialties due to their advanced physical, mechanical, hydraulic, and endurance properties. This important book offers comprehensive coverage of the manufacture, functions, properties, designs, and applications of geotextiles. Part One begins with a chapter on the history of geotextiles, followed by chapters giving detailed reviews of the types of fabrics and their manufacturing processes, from resin type, to fiber extrusion, to textile fabrication. Part Two

covers the properties, behavior, and testing of geotextiles, with Part Three focusing on applications dealing with the specific primary functions of geotextiles. In Part Four, chapters offer numerous general applications of geotextiles, including those in waste containment, marine engineering, walls/slopes, agriculture, and erosion control. Finally, the chapters of Part Five address quality control and assurance for geotextiles, and the increasingly important topic of sustainability. Reviews the types of fabrics used for geotextiles and their manufacturing processes Covers the properties, behavior, and testing of geotextiles Contains detailed discussions of the primary functions of geotextiles and their wide range of applications

Artificial Intelligence for Fashion Industry in the Big Data Era - Sébastien Thomassey 2018-05-16

This book provides an overview of current issues and challenges in the fashion industry and an update on data-driven artificial intelligence (AI) techniques and their potential implementation in response to those challenges. Each chapter starts off with an example of a data-driven AI technique on a particular sector of the fashion industry (design, manufacturing, supply or retailing), before moving on to illustrate its implementation in a real-world application

High Performance Textiles and Their Applications - C. Lawrence 2014-08-21

High performance textiles represent one of the most dynamic sectors of the international textile and clothing industry. With contributions from leading experts in the field, this book provides an important overview of key developments in the field. Chapters cover the use of high performance textiles in such areas as protective clothing, heat and fire protection, medicine, civil engineering and the energy

sector. Reviews various approaches to modelling the geometry, structure and mechanical and physical properties of advanced textile materials Evaluates novel surface treatments involving plasma and laser technologies for a range of high performance textiles Focuses on textiles for specific purposes, with chapters devoted to textiles for heat and fire protection, wound care, industrial filtration, geotextiles, civil engineering and sustainable energy applications

Handbook of Research on Digital Transformation Management and Tools - Pettinger, Richard 2022-06-30

Advances in digital technologies continue to impact all areas of life, including the business sector. Digital transformation is ascertained to usher in the digitalized economy and involves new concepts and management tools that must be considered in the context of management science and practice. For business leaders to ensure their companies remain competitive and relevant, it is essential for them to utilize these innovative technologies and strategies. The Handbook of Research on Digital Transformation Management and Tools highlights new digital concepts within management, such as digitalization and digital disruption, and addresses the paradigm shift in management science incurred by the digital transformation towards the digitalized economy. Covering a range of important topics such as cultural economy, online consumer behavior, sustainability, and social media, this major reference work is crucial for managers, business owners, researchers, scholars, academicians, practitioners, instructors, and students.

Fashion Supply Chain Management Using Radio Frequency Identification (RFID) Technologies - Calvin Wong 2014-02-16

Fashion Supply Chain Management Using Radio Frequency Identification (RFID) Technologies looks at

the application of RFID technologies in such areas as order allocation, garment manufacturing, product tracking, distribution and retail. As supply chains in the textiles and fashion industry become ever more complex and global, and as the shift to mass customization puts more pressure on a rapid and flexible response to customer needs, monitoring and improving supply chain efficiency in the industry becomes crucial. Radio frequency identification (RFID) technologies offer a unique opportunity to achieve these goals. This book reviews the role of RFID technologies in the textiles and fashion supply chain to improve distribution, process management and product tracking, garment manufacturing, and assembly line operations. It also explores how RFID technologies can improve order allocation in the supply chain, and how these technologies can also be used for intelligent apparel product cross-selling. Its chapters also discuss measuring the impact of RFID technologies in improving the efficiency of the textile supply chain, and modeling the effectiveness of RFID technologies in improving sales performance in fashion retail outlets. Fashion Supply Chain Management Using Radio Frequency Identification (RFID) Technologies is a comprehensive resource for academic researchers, industry managers, and professionals within the fashion industry. Looks at the application of RFID technologies in order allocation, garment manufacturing, product tracking, distribution, and retail Reviews RFID technologies in the textiles and fashion supply chain for improving distribution, process management and product tracking, garment manufacturing, and assembly line operations Focuses on measuring the impact of RFID technologies on efficiency, and modeling the effectiveness of RFID technologies in improving retail outlet sales

Advances in Technical Nonwovens - George Kellie

2016-05-17
Advances in Technical Nonwovens presents the latest information on the nonwovens industry, a dynamic and fast-growing industry with recent technological innovations that are leading to the development of novel end-use applications. The book reviews key developments in technical nonwoven manufacturing, specialist materials, and applications, with Part One covering important developments in materials and manufacturing technologies, including chapters devoted to fibers for technical nonwovens, the use of green recycled and biopolymer materials, and the application of nanofibres. The testing of nonwoven properties and the specialist area of composite nonwovens are also reviewed, with Part Two offering a detailed and wide-ranging overview of the many applications of technical nonwovens that includes chapters on automotive textiles, filtration, energy applications, geo- and agrotextiles, construction, furnishing, packaging and medical and hygiene products. Provides systematic coverage of trends, developments, and new technology in the field of technical nonwovens Focuses on the needs of the nonwovens industry with a clear emphasis on applied technology Contains contributions from an international team of authors edited by an expert in the field Offers a detailed and wide-ranging overview of the many applications of technical nonwovens that includes chapters on automotive textiles, filtration, energy applications, geo- and agrotextiles, and more

Advances in Women's Intimate Apparel Technology - Yu Wing Man 2016-04-18
Advances in Women's Intimate Apparel Technology discusses the design and manufacture of intimate apparel and how the industry is increasingly embracing novel materials, new technologies, and innovations in sizing and fit. The book reviews the ways in which new materials and methods are improving the

range, function, and quality of intimate apparel, with particular focus on brassiere design. Part One introduces the advanced materials used for intimate apparel, including novel fabrics and dyes and finishes, along with materials for wiring and embellishments. Part Two discusses the role of seamless technology in intimate apparel production, covering lamination, moulding, and seamless knitting. Finally, Part Three reviews advances in design, fit, and performance. Provides systematic and comprehensive coverage on key trends in intimate apparel technology Presents chapters that follow a coherent sequence, beginning with advanced materials, then discussing new manufacturing techniques, and finishing with coverage of performance and fit"/li> Focuses on the needs of the apparel industry, covering materials, manufacturing, and design aspects Written by distinguished author and professor Winnie Yu who is the Director of the ACE Style Institute of Intimate Apparel at Hong Kong Polytechnic University

Becoming a Supply Chain Leader - Sourya Datta 2021-10-21

The book explains how to emerge and grow as a supply chain leader and details supply chain and procurement processes and operational activities in real-work scenarios across multiple supply chain verticals. The book defines what an entry-level supply chain professional must do to excel in various types of supply chain verticals such as IT, electronics manufacturing, pharmaceutical, retail, and consumer goods. Apart from helping professionals understand vertical specific nuances, this book helps them to set both short-term goals for annual performance review and longer-term career planning. In addition, for a mid- or senior-level supply chain professional, the book offers ideas on ways to launch initiatives and demonstrate leadership to foster career growth. It offers ideas about unlocking new

values for the organization and creating a data-driven decision support platform to gain financial efficiency for better management of CapEx and OpEx spend, thus improving the bottom line. The book includes a tool kit which includes operational data models, financial models, and presentation templates for creating and socializing proposals intended for cross-functional teams and demonstrating supply chain leadership. The book is divided into four major parts. In Part I, the book starts with an overview of key concepts in a manufacturing supply chain and procurement organization. It describes current forms of modern global supply chain and corporate procurement organizations. The objective of Part II is to provide a framework for a self-directed supply chain manager to understand how a large organization evaluates the contribution of supply chain managers and where it expects them to create value. To foster career growth as a supply chain professional, the book identifies six key knowledge pillars for demonstrating supply chain mastery: Technical and market knowledge of the end product and its constituents. Knowledge of internal product development and sustaining processes and supporting consumption data. Health and market condition of the supplier. Ability to create value. Ability to build internal and external executive relationships with key influencers. Ability to obtain best cost without compromising on quality and lead time. Negotiating cost, sourcing material, and then the logistics of moving the raw material through multiple stages and finally finished materials across the globe are some of the key areas which need continuous improvement. As a sentinel of efficiency, removing any kind of wastage leads to immediate value creation and contributes to the margin by improving the bottom line. In Part III, the book reviews twelve such

verticals namely printer, medical, IT, energy, automotive, cloud, dairy, data management, avionics, biotech, apparel and start up and the supply chain nuances through the lenses of the framework created in Part II. In Part IV, the book goes back to focus on the professional growth of an individual supply chain person in an industry agnostic way. It provides examples of financial and operational efficiencies that a supply chain professional can create.

Optimizing Decision Making in the Apparel Supply Chain Using Artificial Intelligence (AI) - Calvin Wong 2013-01-24

Practitioners in apparel manufacturing and retailing enterprises in the fashion industry, ranging from senior to front line management, constantly face complex and critical decisions. There has been growing interest in the use of artificial intelligence (AI) techniques to enhance this process, and a number of AI techniques have already been successfully applied to apparel production and retailing. Optimizing decision making in the apparel supply chain using artificial intelligence (AI): From production to retail provides detailed coverage of these techniques, outlining how they are used to assist decision makers in tackling key supply chain problems. Key decision points in the apparel supply chain and the fundamentals of artificial intelligence techniques are the focus of the opening chapters, before the book proceeds to discuss the use of neural networks, genetic algorithms, fuzzy set theory and extreme learning machines for intelligent sales forecasting and intelligent product cross-selling systems. Helps the reader gain an understanding of the key decision points in the apparel supply chain Discusses the fundamentals of artificial intelligence techniques for apparel management techniques Considers the use of neural networks in selecting the location of apparel manufacturing plants

Handbook of Life Cycle Assessment (LCA) of Textiles

and Clothing - Subramanian Senthilkannan Muthu 2015-07-25
Life cycle assessment (LCA) is used to evaluate the environmental impacts of textile products, from raw material extraction, through fibre processing, textile manufacture, distribution and use, to disposal or recycling. LCA is an important tool for the research and development process, product and process design, and labelling of textiles and clothing. Handbook of Life Cycle Assessment (LCA) of Textiles and Clothing systematically covers the LCA process with comprehensive examples and case studies. Part one of the book covers key indicators and processes in LCA, from carbon and ecological footprints to disposal, re-use and recycling. Part two then discusses a broad range of LCA applications in the textiles and clothing industry. Covers the LCA process and its key indicators, including carbon and ecological footprints, disposal, re-use and recycling Examines the key developments of LCA in the textile and clothing industries Provides a wide range of case studies and examples of LCA applications in the textile and clothing industries

Structure and Properties of High-Performance Fibers - Gajanan Bhat 2016-08-21
Structure and Properties of High-Performance Fibers explores the relationship between the structure and properties of a wide range of high-performance fibers. Part I covers high-performance inorganic fibers, including glasses and ceramics, plus carbon fibers of various types. In Part II, high-performance synthetic polymer fibers are discussed, while Part III reviews those natural fibers that can be used to create advanced textiles. The high-performance properties of these fibers are related to their chemistry and morphology, as well as the ways in which they are synthesized and spun. High-performance fibers form the basis of textile materials with applications in protection,

medicine, and composite reinforcement. Fibers are selected for these technical applications due to their advanced physical, mechanical, and chemical properties. Offers up-to-date coverage of new and advanced materials for the fiber and textile industries Reviews structure-property relationships of high-performance inorganic, carbon, synthetic polymer, and natural fibers Includes contributions from an international team of authors edited by an expert in the field Reviews those natural fibers that can be used to create advanced textiles

Garment Manufacturing Technology - Rajkishore Nayak 2015-05-26

Garment Manufacturing Technology provides an insiders' look at this multifaceted process, systematically going from design and production to finishing and quality control. As technological improvements are transforming all aspects of garment manufacturing allowing manufacturers to meet the growing demand for greater productivity and flexibility, the text discusses necessary information on product development, production planning, and material selection. Subsequent chapters covers garment design, including computer-aided design (CAD), advances in spreading, cutting and sewing, and new technologies, including alternative joining techniques and seamless garment construction. Garment finishing, quality control, and care-labelling are also presented and explored. Provides an insiders look at garment manufacturing from design and production to finishing and quality control Discusses necessary information on product development, production planning, and material selection Includes discussions of computer-aided design (CAD), advances in spreading, cutting and sewing, and new technologies, including alternative joining techniques and seamless garment construction Explores garment finishing, quality control, and

care labelling

Business Models and ICT Technologies for the Fashion Supply Chain - Rinaldo Rinaldi 2017-02-10

This book presents high-quality original contributions on the fashion supply chain. A wide spectrum of application domains are covered, processing of big data coming from digital and social media channels, fashion new product development, fashion design, fashion marketing and communication strategy, business models and entrepreneurship, e-commerce and omni-channel management, corporate social responsibility, new materials for fashion product, wearable technologies. The contents are based on presentations delivered at IT4Fashion 2016, the 6th International Conference in Business Models and ICT Technologies for the Fashion Supply Chain, which was held in Florence, Italy, in April 2016. This conference series represents a targeted response to the growing need for research that reports and debates supply chain business models and technologies applied to the fashion industry, with the aim of increasing knowledge in the area of product lifecycle management and supply chain management in that industry.

Textile-led Design for the Active Ageing Population - Jane McCann 2014-08-19

Despite the world's aging population, suitable clothing for the older community is a largely neglected area. This book considers the needs of the growing number of active older people and investigates how recent developments in textiles, fibres, finishes, design and integrated technology can be deployed to serve this group and improve quality of life. Part I provides an understanding of the active aging population by considering the group's experiences of and attitudes towards clothing and reviewing the barriers to their adoption of new wearable technologies. Part II focuses on the needs of the older population, including effective communication with designers and the age-related

anatomical and physiological changes that designs should consider. Part III reviews design requirements and processes, and finally Part IV reviews the manufacture of suitable apparel, with chapters on suitable textile fibres, balancing technology and aesthetics and wearable electronics. Summarises the wealth of recent research on attitudes to clothing amongst the active ageing population Looks into how their aspirations can be investigated and appropriate apparel designed to meet their needs Examines design and manufacturing issues, including ways of accommodating physiological changes with age and the use of wearable electronics

Assessing the Environmental Impact of Textiles and the Clothing Supply Chain - Subramanian Senthilkannan Muthu 2014-03-13

The textile industry impacts the environment in a number of ways, including its use of resources, its impact on global warming, and the amount of pollution and waste it generates. Assessing the Environmental Impact of Textiles and the Clothing Supply Chain reviews methods used to calculate this environmental impact, including product carbon footprints (PCFs), ecological footprints (EFs), and life cycle assessment (LCA). The first chapters provide an introduction to the textile supply chain and its environmental impact, and an overview of the methods used to measure this impact. The book goes on to consider different environmental impacts of the industry, including greenhouse gas emissions, the water and energy footprints of the industry, and depletion of resources, as well as the use of LCA to assess the overall environmental impact of the textile industry. It then deals with the practice of measuring these impacts before forming a conclusion about the environmental impact of the industry. Assessing the

Environmental Impact of Textiles and the Clothing Supply Chain provides a standard reference for R&D managers in the textile industry and academic researchers in textile science. Reviews the main methods used to calculate the textile industry's use of resources, its impact on global warming and the pollution and waste it generates Reviews the key methods, their principles and how they can be applied in practice to measure and reduce the environmental impact of textile products Includes the following calculation methods: product carbon footprints (PCFs), ecological footprints (EFs) and life cycle assessment (LCA)

Principles of Colour and Appearance Measurement - Asim Kumar Roy Choudhury 2014-11-04

Colour and appearance perceptions are very complex psychological phenomena. Written by one of the foremost authorities in the field, this major two-volume work addresses the key topics required to understand the issues and manage colour effectively. Principles of colour appearance and measurement Volume 2 addresses the visual measurement of colour, methods of comparing colours, and the management of colour in industry. Volume 2 begins with an overview of the visual measurement of colour. Chapter 1 discusses means of colour communication and various visual attributes of colour. Chapter 2 then focuses on several popular colour order systems, and chapter 3 discusses various colour difference formulae and their use in colour comparison and control. Subsequent chapters review instrumental colorant formulation, metamerism, chromatic adaptation and colour constancy, methods of shade sorting and digital colour reproduction. Addresses the means of colour communication and the various attributes of colour Examines colour order systems and the methods of colour comparison Reviews the management of colour in industry

Applications of Computer Vision in Fashion and Textiles - Calvin Wong 2017-10-20

Applications of Computer Vision in Fashion and Textiles provides a systematic and comprehensive discussion of three key areas that are taking advantage of developments in computer vision technology, namely textile defect detection and quality control, fashion recognition and 3D modeling, and 2D and 3D human body modeling for improving clothing fit. It introduces the fundamentals of computer vision techniques for fashion and textile applications, also reviewing computer vision techniques for textile quality control, including chapters on wavelet transforms, Gibor filters, Fourier transforms, and neural network techniques. Final sections cover recognition, modeling, retrieval technologies and advanced human shape modeling techniques. The book is essential reading for scientists and researchers working in the field of fashion production, quality assurance, product development, textiles, fashion supply chain managers, R&D professionals and managers in the textile industry. Explores computer vision technology with reference to improving budget, quality and schedule control in textile manufacturing Provides a thorough understanding of the role of computer vision in developing intelligent systems for the fashion and textiles industries Elucidates the connections between human body modeling technology and intelligent manufacturing systems

Advances in Braiding Technology - Yordan Kyosev 2016-03-12

Braiding is the process of interlacing three or more threads or yarns in a diagonal direction to the product axis in order to obtain thicker, wider or stronger textiles or, in the case of overbraiding, in order to cover a profile. Braids are becoming the reinforcement of choice in composite manufacturing, and have found a range of technical

applications in fields including medicine, candles, transport and aerospace. Building on the information provided in Prof. Kyosev's previous book, Braiding Technology for Textiles, this important title covers advanced technologies and new developments for the manufacture, applications and modelling of braided products. Part One covers the braiding of three-dimensional profiles, and includes a detailed overview of three-dimensional braiding technologies as well as chapters devoted to specific kinds of 3D braiding. Part Two addresses specialist braiding techniques and applications, and includes chapters reviewing the use of braids for medical textiles and candles. Part Three focuses on braiding techniques for ropes and Part Four reviews braiding for composites. The final part of the book considers modelling and simulation, and covers topics including overbraiding simulation, Finite Element Method (FEM) modelling and geometrical modelling. Covers advanced braiding techniques, technical applications, and modelling and simulation of braided textiles. Focused on the needs of the textile industry by offering suitable breadth and depth of coverage of a range of braiding manufacturing technology, applications and modelling techniques in a single volume. Written by an eminent team of authors, composed of leading scientists and developers in the field who have a wealth of relevant, first-hand experience in braiding, and edited by a high-profile editor who is an expert in his field.

Information Systems for the Fashion and Apparel Industry - Tsan-Ming Jason Choi 2016-04-13

Information Systems for the Fashion and Apparel Industry brings together trends and developments in fashion information systems, industrial case-studies, and insights from an international team of authors. The fashion and apparel industry is fast-growing and highly influential. Computerized information systems are essential to

support fashion business operations and recent developments in social media, mobile commerce models, radio frequency identification (RFID) technologies, and ERP systems are all driving innovative business measures in the industry. After an introductory chapter outlining key decision points and information requirements in fast fashion supply chains, Part One focuses on the principles of fashion information systems, with chapters covering how decision making in the apparel supply chains can be improved through the use of fuzzy logic, RFID technologies, evolutionary optimization techniques, and artificial neural networks. Part Two then reviews the range of applications for information systems in the fashion and apparel industry to improve customer choice, aid design, implement intelligent forecasting and procurement systems, and manage inventory and returns. Provides systematic and comprehensive coverage of information systems for the fashion and apparel industry Combines recent developments and industrial best-practices in apparel supply chain management in order to meet the needs of the fashion and apparel industry professionals and academics Features input from a team of highly knowledgeable authors with a range of professional and academic experience, overseen by an editor who is a leading expert in the field Reviews the range of applications for information systems in the fashion and apparel industry to improve customer choice, aid design, implement intelligent forecasting and procurement systems, and manage inventory and returns

Biotextiles as Medical Implants - M W King 2013-10-31

Textiles play a vital role in the manufacture of various medical devices, including the replacement of diseased, injured or non-functioning organs within the body. Biotextiles as medical implants provides an invaluable single

source of information on the main types of textile materials and products used for medical implants. The first part of the book focuses on polymers, fibers and textile technologies, and these chapters discuss the manufacture, sterilization, properties and types of biotextiles used for medical applications, including nanofibers, resorbable polymers and shaped biotextiles. The chapters in part two provide a comprehensive discussion of a range of different clinical applications of biotextiles, including surgical sutures, arterial prostheses, stent grafts, percutaneous heart valves and drug delivery systems. This book provides a concise review of the technologies, properties and types of biotextiles used as medical devices. In addition, it addresses the biological dimension of how to design devices for different clinical applications, providing an invaluable reference for biomedical engineers of medical textiles, quality control and risk assessment specialists, as well as managers of regulatory affairs. The subject matter will also be of interest to professionals within the healthcare system including surgeons, nurses, therapists, sourcing and purchasing agents, researchers and students in different disciplines. Provides an invaluable single source of information on the main types of textile materials and products used for medical implants Addresses the technologies used and discusses the manufacture, properties and types of biotextiles Examines applications of biotextiles as medical implants, including drug delivery systems and stent grafts and percutaneous heart valves

Intelligent Decision-making Models for Production and Retail Operations - Zhaoxia Guo 2016-07-26

This book provides an overview of intelligent decision-making techniques and discusses their application in production and retail operations.

Manufacturing and retail enterprises have stringent standards for using advanced and reliable techniques to improve decision-making processes, since these processes have significant effects on the performance of relevant operations and the entire supply chain. In recent years, researchers have been increasingly focusing attention on using intelligent techniques to solve various decision-making problems. The opening chapters provide an introduction to several commonly used intelligent techniques, such as genetic algorithm, harmony search, neural network and extreme learning machine. The book then explores the use of these techniques for handling various production and retail decision-making problems, such as production planning and scheduling, assembly line balancing, and sales forecasting.

Antimicrobial Textiles - Gang Sun 2016-04-11

Antimicrobial textiles have attracted a great deal of interest in recent years due to their potential for reducing the transmission of infection in medical and healthcare environments. Antimicrobial properties can also improve the performance and lifespan of consumer products, and so these fabrics are increasingly finding applications in the wider textile and apparel industry. This book provides systematic coverage of the technologies and materials required for developing these important textiles. In Part One, chapters address key issues and technologies in the creation of antimicrobial textile products. Topics covered include testing and regulation, microencapsulation, sol-gel coating and plasma technologies, nanotechnology and life cycle assessment. Part Two then reviews key antimicrobial agents, such as N-halamines, plant based compounds and photo-active chemicals. Finally, the chapters of Part Three offer detailed reviews of antimicrobial textiles for particular important applications, including medical

devices, protective clothing and products with improved durability and longevity. Reviews key issues and technologies in the creation of antimicrobial textile products Offered a detailed overview of by antimicrobial agents and a wide range of important applications Produced by an experienced editor and a distinguished and international team of contributors

Optimizing Decision Making in the Apparel Supply Chain Using Artificial Intelligence (AI) - Wai Keung Wong 2013-08-30

Recently, artificial intelligence (AI)techniques have received increasing attention from both practitioners and researchers in the apparel industry, and have been utilized to handle a variety of decision-making processes in apparel supply chain operations. These operations have successfully applied a number of AI techniques, such as neural networks, genetic algorithms, fuzzy logic and evolutionary strategies. The ten chapters of this book provide a detailed coverage of the fundamentals and applications of various artificial intelligence techniques to assist decision makers in tackling key problems in the apparel supply chain. The first two chapters discuss a range of key problems faced by apparel enterprises in apparel supply chain operations and introduce the basics of the main AI techniques which have been used in solving decision-making problems. The remaining eight chapters show how key problems in the apparel supply chain can be solved and solutions optimized by use of AI techniques.

Modelling, Simulation and Control of the Dyeing Process - R. Shamey 2014-08-14

With increased environmental awareness and rising costs, manufacturers are investing in real time monitoring and control of dyeing to increase its efficiency and quality. This book reviews ways of automating the dyeing process as well as ways of understanding key processes in dyeing, including dye transport in fluid systems. This

understanding is then used to create models to simulate the dyeing process which can then be used to develop appropriate measurement and control systems. Control of variables such as temperature, pH, conductivity and dye concentration can then be used to ensure a more consistent and cost-effective dyeing process. Reviews the dyeing process and dye house automation, and the factors that affect dyeing quality and common difficulties in the process. Explains the principles underlying the dyeing process and provides a thorough understanding of the mathematical models that can be used to approximate it. Discusses techniques for monitoring dyebaths and controlling the dyeing process.

Ink Jet Textile Printing - Christina Cie 2015-02-11

With the rapid expansion of ink jet printing, textile printing and allied industries need to understand the principles underpinning this technology and how it is currently being successfully implemented into textile products. Considering the evolution of new print processes, technological development often involves a balance of research across different disciplines. Translating across the divide between scientific research and real-world engagement with this technology, this comprehensive publication covers the basic principles of ink jet printing and how it can be applied to textiles and textile products. Each step of the ink jet printing process is covered, including textiles as a substrate, colour management, pre-treatments, print heads, inks and fixing processes. This book also considers the range of textile printing processes using ink jet technology, and discusses their subsequent impact on the textile designer, manufacturer, wholesaler, retailer and the environment. Covers the foundations and development of ink jet textile printing technology Discusses the steps of ink jet printing from colour management to fixing processes Analyses how ink jet printing has affected the

textile industry

Sustainable Apparel - Richard Blackburn 2015-08-28

Sustainability is an issue that increasingly concerns all those involved in the apparel industry, including textile manufacturers, apparel designers, retailers and consumers. This important book covers recent advances and novel technologies in the key areas of production, processing and recycling of apparel. Part One addresses sustainable finishing and dyeing processes for textiles. The first two chapters concentrate on the environmental impact of fabric finishing, including water consumption, emissions and waste management. Further chapters focus on plasma and enzymatic treatments for sustainable textile processing, and the potential for improving the sustainability of dyeing technologies. Part Two covers issues of design, retail and recycling, and includes discussions of public attitudes towards sustainability in fashion, methods of measuring apparel sustainability and social trends in the re-use of apparel. Reviews sustainable finishing and dyeing processes for textiles Addresses social attitudes towards and methods for measuring sustainability in the apparel industry and retail sectors Covers recycling of apparel

Smart Textiles and Their Applications - Vladan Koncar 2016-04-22

Smart Textiles and Their Applications outlines the fundamental principles of applied smart textiles, also reporting on recent trends and research developments. Scientific issues and proposed solutions are presented in a rigorous and constructive way that fully presents the various results, prototypes, and case-studies obtained from academic and industrial laboratories worldwide. After an introduction to smart textiles and their applications from the editor, Part One reviews smart textiles for medical purposes, including their use in health monitoring, treatment delivery, and

assistive technologies. Part Two covers smart textiles for transportation and energy, with chapters covering smart textiles for the monitoring of structures and processes, as well as smart textiles for energy generation. The final section considers smart textiles for protection, security, and communication, and includes chapters covering electrochromic textile displays, textile antennas, and smart materials for personal protective equipment. Scientific issues and proposed solutions are presented in a rigorous and constructive way regarding various results, prototypes, and case-studies obtained from academic and industrial laboratories worldwide Useful for researchers and postgraduate students, and also for existing companies and start-ups that are developing products involving smart textiles Authored and edited by an international team who are experts in the field ensure comprehensive coverage and global relevance

Textiles for Sportswear - Roshan Shishoo 2015-05-28 Textiles for Sportswear is an important book that systematically covers key trends in design and materials, the use of novel and smart fabrics, and a range of specific applications. The book begins by surveying the principles of textile applications in sport, including design, materials, and production technology. The uses of smart textiles in sportswear are then examined, from intelligent materials to wearable technology. Final sections of the text explore comfort in sportswear, sportswear for protection, and recent advances in sportswear technology that are currently being applied to particular sports. Reviews the principles of textile applications in sport, including design, materials and production technology Examines the uses of smart textiles in sportswear Discusses how recent advances in sportswear technology are being applied to particular sports

Active Coatings for Smart

Textiles - Jinlian Hu 2016-04-06

Active Coatings for Smart Textiles presents the latest information on active materials and their application to textiles in the form of coatings and finishes for the purpose of improving performance and creating active functional effects. This important book provides detailed coverage of smart coating types, processes, and applications. After an introduction to the topic, Part One introduces various types of smart and active coatings, including memory polymer coatings, durable and self-cleaning coatings, and breathable coatings. Technologies and related processes for the application of coatings to textiles is the focus of Part Two, with chapters devoted to microencapsulation technology, plasma surface treatments, and nanotechnology-based treatments. The book ends with a section on applications of smart textiles with responsive coatings, which are increasingly finding commercial niches in sportswear, protective clothing, medical textiles, and architecture. Introduces various types of smart and active coatings for textiles Covers technologies and application processes for the coating and finishing of textiles Reviews commercial applications of such coatings, including in sportswear, protective clothing, medical textiles and architecture

Anthropometry, Apparel Sizing and Design - Deepti Gupta 2014-02-15

One of the greatest challenges for the apparel industry is to produce garments that fit customers properly. Anthropometry, Apparel Sizing and Design addresses the need for improved characterization of our populations in order to tailor garments according to size, weight, and shape of consumers. This book reviews techniques in anthropometry, sizing system developments, and their applications to clothing design. Part one considers a range of anthropometric methods. The

text discusses the range of sizing systems, including data mining techniques, useful for bridging the gap between ergonomists and designers. Chapters examine three-dimensional anthropometric methods and multivariate and bivariate analysis for identifying key body dimensions. Part two then explains how to analyze anthropometric data to develop appropriate sizing systems. Here, the book discusses classification and clustering of human body shapes, the importance of national surveys, and using the data obtained to ensure inclusive design strategies. The book covers sizing systems developed for particular groups, apparel size designation, and the potential for international standardization. It considers the advantages of 3D body scanning and computer-aided design, and the use of body motion analysis to address ease allowance requirements of apparel. With its distinguished editors and international contributors, this work is an essential reference, particularly due to the specific combination of aspects of anthropometry and the sizing of clothing, for researchers, garment designers, students, and manufacturers in the clothing and fashion industry. Reviews techniques in anthropometry, sizing system developments, and their applications to clothing design Examines 3D anthropometric methods and multivariate and bivariate analysis for identifying key body dimensions Covers sizing systems developed for particular groups, apparel size designation, and the potential for international standardization

Textiles and Fashion - Rose Sinclair 2014-11-08

This major textbook is designed for students studying textiles and fashion at higher and undergraduate level, as well as those needing a comprehensive and authoritative overview of textile materials and processes. The first part of the book reviews the main types of natural and synthetic fibres

and their properties. Part two provides a systematic review of the key processes involved first in converting fibres into yarns and then transforming yarns into fabrics. Part three discusses the range of range of finishing techniques for fabrics. The final part of the book looks specifically at the transformation of fabric into apparel, from design and manufacture to marketing. With contributions from leading experts in their fields, this major book provides the definitive one-volume guide to textile manufacture. Provides comprehensive coverage of the types and properties of textile fibres to yarn and fabric manufacture, fabric finishing, apparel production and fashion Focused on the needs of college and undergraduate students studying textiles or fashion courses Each chapter ends with a summary to emphasise key points, a comprehensive self-review section, and project ideas are also provided