

## Digital Modeling Digital

Create Genuine Visual Realism in Computer Graphics Digital Representations of the Real World: How to Capture, Model, and Render Visual Reality explains how to portray visual worlds with a high degree of realism using the latest video acquisition technology, computer graphics methods, and computer vision algorithms. It explores the integration of new capture modalities, reconstruction approaches, and visual perception into the computer graphics pipeline. Understand the Entire Pipeline from Acquisition, Reconstruction, and Modeling to Realistic Rendering and Applications The book covers sensors for capturing 3D scenes, including regular cameras, wide-angle omnidirectional cameras, active range scanners, and plenoptic (multi-viewpoint) cameras, as well as fundamental algorithms for processing the imagery, such as stereo correspondence and 3D structure and motion recovery. It describes 3D modeling techniques, from generic object models (such as 3D meshes) to more domain-specific models (such as human shape and motion models). The book also discusses how techniques, including image- and video-based rendering, meet speed and realism requirements. Overcome Challenges in Your Own Research Experiments This book is both an accessible introduction to the emerging research of real-world visual computing and a practical guide that shows you how to start implementing frequently encountered methods.

Since the beginning of time, running a business has involved using logic by which the business operates. This logic is called the business model in management science, which increasingly is focusing on issues surrounding business models. Research trends related to business models include value creation, value chain operationalization, and social and ecological aspects, as well as innovation and digital transformation. Business Models: Innovation, Digital Transformation, and Analytics examines how innovation, digital transformation, and the composition of value affect the existence and development of business models. The book starts by addressing the conceptual development of business models and by discussing the essence of innovation in those models. Chapters in the book investigate how: Business models can analyze digital transformation scenarios Individual business model elements effect selected performance measures as well as how the elements are significant for the enterprise value composition The environment effects the profitability of the high-growth enterprise business models Employer branding business models are perceived by the generation Z workforce To implement responsible business models in the enterprise Cyber risk is captured in business models Decision algorithms are important to business analytics This book is a compendium of knowledge about the use of business models in the context of innovative activities, digital transformation, and value composition. It attempts to combine the theory and practice and offers a look at business models currently used in companies, especially high-growth enterprises, in various countries of the world and indicates the prospects for their development.

The Digital Age is having a broad and profound impact on companies and entire industries. Rather than simply automate or embed digital technology into existing offerings, your business needs to rethink everything. In this practical book, three ThoughtWorks professionals provide a game plan to help your business through this transformation, along with technical concepts that you need to know to be an effective leader in a modern digital business. Chock-full of practical advice and case studies that show how businesses have transitioned, this book reveals lessons learned in guiding companies through digital transformation. While there's no silver bullet available, you'll discover effective ways to create lasting change at your organization. With this book, you'll discover how to: Realign the business and operating architecture to focus on customer value Build a more responsive and agile organization to deal with speed and ambiguity Build next generation technology capability as a core differentiator Digital transformation is not about technology—it's about change. In the rapidly changing digital economy, you can't succeed by merely tweaking management practices that led to past success. And yet, while many leaders and managers recognize the threat from digital—and the potential opportunity—they lack a common language and compelling framework to help them assess it and guide them in responding. They don't know how to think about their digital business model. In this concise, practical book, MIT digital research leaders Peter Weill and Stephanie Woerner provide a powerful yet straightforward framework that has been field-tested globally with dozens of senior management teams. Based on years of study at the MIT Center for Information Systems Research (CISR), the authors find that digitization is moving companies' business models on two dimensions: from value chains to digital ecosystems, and from a fuzzy understanding of the needs of end customers to a sharper one. Looking at these dimensions in combination results in four distinct business models, each with different capabilities. The book then sets out six driving questions, in separate chapters, that help managers and executives clarify where they are currently in an increasingly digital business landscape and highlight what's needed to move toward a higher-value digital business model. Filled with straightforward self-assessments, motivating examples, and sharp financial analyses of where profits are made, this smart book will help you tackle the threats, leverage the opportunities, and create winning digital strategies.

Six Questions to Help You Build the Next-Generation Enterprise

What's Your Digital Business Model?

Driving Transformation and Innovation

Plan and Model Digital Products for Today and Tomorrow

Business Models

Rethink Your Business for the Digital Age

Digital Human Modeling

A comprehensive and detailed treatment of the program SIMULINK® that focuses on SIMULINK® for simulations in Digital and Wireless Communications Modeling of Digital Communication Systems Using SIMULINK® introduces the reader to SIMULINK®, an extension of the widely-used MATLAB modeling tool, and the use of SIMULINK® in modeling and simulating digital communication systems, including wireless communication systems. Readers will learn to model a wide selection of digital communications techniques and evaluate their performance for many important channel conditions. Modeling of Digital Communication Systems Using SIMULINK® is organized in two parts. The first addresses Simulink® models of digital communications systems using various modulation, coding, channel conditions and receiver processing techniques. The second part provides a collection of examples, including speech coding, interference cancellation, spread spectrum, adaptive signal processing, Kalman filtering and modulation and coding techniques currently implemented in mobile wireless systems. Covers case examples, progressing from basic to complex Provides applications for mobile communications, satellite communications, and fixed wireless systems that reveal the power of SIMULINK modeling Includes access to useable SIMULINK® simulations online All models in the text have been updated to R2018a; only problem sets require updating to the latest release by the user Covering both the use of SIMULINK® in digital communications and the complex aspects of wireless communication systems, Modeling of Digital Communication Systems UsingSIMULINK® is a great resource for both practicing engineers and students with MATLAB experience.

This book presents the latest advances in modeling and simulation for human factors research. It reports on cutting-edge simulators such as virtual and augmented reality, multisensory environments, and modeling and simulation methods used in various applications, including surgery, military operations, occupational safety, sports training, education, transportation and robotics. Based on two AHFE 2020 Virtual Conferences such as the AHFE 2020 Virtual Conference on Human Factors and Simulation and the AHFE 2020 Virtual Conference on Digital Human Modeling and Applied Optimization, held on July 16–20, 2020, the book serves as a timely reference guide for researchers and practitioners developing new modeling and simulation tools for analyzing or improving human performance. It also offers a unique resource for modelers seeking insights into human factors research and more feasible and reliable computational tools to foster advances in this exciting field.

Bridges the gap between traditional and contemporary methods of creating architectural design drawings and 3D models through the use of digital tools and computational processes This book provides readers with an overview of traditional and contemporary architectural representation methods and offers insight into significant developments in computing as they apply to architectural drawing and modeling. It offers readers a look into recent developments in technologies that have impacted architectural design and representation workflows, and focuses on digital design software used in higher education and industry, including Robert McNeel & Associates Rhinoceros® (Rhino 6 for Windows), Grasshopper®, and Adobe Illustrator® CC. The book covers fundamental methods for digital drawing, 3D modeling, and visual programming through descriptions, examples, and tutorial-based instructions specific to the production of digital design drawings and graphics. Drawing from the Model: Fundamentals of Digital Drawing, 3D Modeling, and Visual Programming in Architectural Design presents beginning architectural design students and professionals with a broad overview of drawing and modeling in architectural representation, by addressing historical analog methods based on descriptive geometry and projection and transitioning to contemporary digital methods based on computational processes and emerging technologies. The book focuses on digital tools, techniques, and workflows for the production of design drawings; plans, sections, elevations, axonometrics, and perspectives, utilizing contemporary, cutting-edge 2D drawing and 3D modeling, design software. Additionally, visual programming is introduced to address topics of parametric modeling, algorithmic design, computational simulations, physical computing, and robotics, as methods for exploring architectural design and experimental drawing processes. Sections cover Architectural Representation and Digital Technologies; The 3D Modeling Environment and Geometry; Architectural Design Drawings and Graphics; and Computational Design. It features an appendix filled with 10 design drawing and 3D modeling exercises intended as educational and pedagogical examples for readers to practice and/or teach workflows that are addressed in the book. Acts as an important bridge between analog hand-drawing and digital design drawing techniques, with examples of traditional and contemporary architectural design drawings Provides comprehensive coverage of architectural representation, computing, computer-aided drafting, and 3D modeling tools, techniques, and workflows, for contemporary architectural design drawing aesthetics and graphics Introduces topics of parametric modeling, algorithmic design, computational simulation, physical computing, and robotics through visual programming environments and processes Features tutorial-based instruction using the latest versions of Rhino 6 for Windows, Grasshopper®, Adobe Illustrator® CC, and Arduino Drawing from the Model will serve as an excellent resource for beginning architectural design students in higher education and as a helpful reference for professionals in practice, teaching readers beginning and intermediate digital representation methods for the production of architectural design drawings that reflect contemporary aesthetics and graphics. These drawings are generated using 3D modeling and parametric/algorithmic workflows to create linework that is enhanced with digital drawing and graphic design software. Additional workflows include the use of 3D modeling and visual programming environments to explore fundamental concepts of computational simulations, physical computing, and robotics and introductory methods for addressing these topics.

A digital elevation model (DEM) is a digital representation of ground surface topography or terrain. It is also widely known as a digital terrain model (DTM). A DEM can be represented as a raster (a grid of squares) or as a vector based triangular irregular network (TIN). DEMs are commonly built using remote sensing techniques, but they may also be built from land surveying. DEMs are used often in geographic information systems, and are the most common basis for digitally-produced relief maps. The terrain surface can be described as comprising of two different elements; random and systematic. The random (stochastic) elements are the continuous surfaces with continuously varying relief. It would take an endless number of points to describe exactly the random terrain shapes, but these can be described in practice with a network of point. It is usual to use a network that creates sloping triangles or regular quadrants. This book examines how the methods and data sources used to generate DEMs and calculate land surface parameters have changed over the past 25 years. The primary goal is to describe the state-of-the-art for a typical digital terrain modeling workflow that starts with data capture, continues with data preprocessing and DEM generation, and concludes with the calculation of one or more primary and secondary land surface parameters. Taken as a whole, this book covers the basic theory behind the methods, the instrumentation, analysis and interpretation that are embedded in the modern digital terrain modeling workflow, the strengths and weaknesses of the various methods that the terrain analyst must choose among, typical applications of the results emanating from these terrain modeling workflows, and future directions. This book is intended for researchers and practitioners who wish to use DEMs, land surface parameters, land surface objects and landforms in environmental projects. The book will also be valuable as a reference text for environmental scientists who are specialists in related fields and wish to integrate these kinds of digital terrain workflows and outputs into their own specialized work environments.

Landscape Modeling

Innovation, Digital Transformation, and Analytics

Business Modelling in the Dynamic Digital Space

design, representation and manufacturing

Digital Terrain Modelling

Data-Driven Business Models for the Digital Economy

Modeling, Synthesis, and Simulation Using VHDL

This Springer Briefs volume guides the reader in a comprehensive form to design new digital business models. The book provides strategic roadmaps for enterprises in the digital world, and a comprehensive framework to assess new business models. It aligns both, research and a practical perspective through real case study examples. Even extreme scenarios are employed to ensure that innovative approaches are being considered adequately.

Professional modeling is the foundation of every aspect of the 3D production pipeline and is essential to the success of any 3D computer graphics project. [digital] Modeling is unlike any other modeling book you've seen!It gets to the core of what it takes to create efficient production-ready models and demystifies the process of producing realistic and jaw-dropping graphics. Taking a software-neutral approach, it teaches you the essential skills and concepts that you can apply to modeling in any industry 3D software, such as 3ds Max, LightWave 3D, Maya, Modo, Silo, XSI, ZBrush and other leading programs. Modelers, animators, texture artists, and technical directors can all benefit from the valuable information covered in this jam-packed guide containing years of industry knowledge. Simply put, if you work in 3D, you must have this book. In this inspiring and informative guide to modeling, industry veteran William Vaughan teaches you how to: Master modeling techniques to produce professional results in any 3D application Use the tools of a professional digital modeler Control your models polygon-count as well as polygon-flow Create both organic and hard surface models Understand a modeler's role in a production environment Gain the knowledge to land a job in the industry as a digital modeler Model using specific tools such as LightWave and 3ds Max in over 6 hours of video training in the accompanying downloadable lesson files (see below for details) And much more! All of Peachpit's eBooks contain the same content as the print edition. You will find a link in the last few pages of your eBook that directs you to the media files. Helpful tips: If you are able to search the book, search for "Where are the lesson files?" Go to the very last page of the book and scroll backwards. You will need a web-enabled device or computer in order to access the media files that accompany this ebook. Entering the URL supplied into a computer with web access will allow you to get to the files.

Depending on your device, it is possible that your display settings will cut off part of the URL. To make sure this is not the case, try reducing your font size and turning your device to a landscape view. This should cause the full URL to appear.

Today the fastest growing companies have no physical assets. Instead, they create innovative digital products and new data-driven business models. They capture huge market share fast and their capitalizations skyrocket. The success of these digital giants is pushing all companies to rethink their business models and to start digitizing their products and services. Whether you are a new start-up building a digital product or service, or an employee of an established company that is transitioning to digital, you need to consider how digitization has transformed every aspect of management. Data-driven business models scale not through asset accumulation and product standardization, but through disaggregation of supply and demand. The winners in the new economy master the demand for one and the supply to millions. Throughout the book the author illustrates with examples and use cases how the market competition has changed and how companies adept to the new rules of the game. The economic levers of scale and scope are also different in the digital economy and companies have to learn new tactics how to achieve and sustain their competitive advantage. While data is at the core of all digital business models, the monetization strategies vary across products, services and business models. Our Monetization Matrix is a model that helps managers, marketers, sales professionals, and technical product designers to align the digital product design with the data-driven business model.

Semi-empirical Neural Network Modeling presents a new approach on how to quickly construct an accurate, multilayered neural network solution of differential equations. Current neural network methods have significant disadvantages, including a lengthy learning process and single-layered neural networks built on the finite element method (FEM). The strength of the new method presented in this book is the automatic inclusion of task parameters in the final solution formula, which eliminates the need for repeated problem-solving. This is especially important for constructing individual models with unique features. The book illustrates key concepts through a large number of specific problems, both hypothetical models and practical interest. Offers a new approach to neural networks using a unified simulation model at all stages of design and operation Illustrates this new approach with numerous concrete examples throughout the book Presents the methodology in separate and clearly-defined stages

First International Conference, ICDHM 2007, Held as Part of HCI International 2007, Beijing, China, July 22-27, 2007, Proceedings

Digital Modelling for Urban Design

Digital Sound Synthesis by Physical Modeling Using the Functional Transformation Method

Digital Transformation Now!

Advances in Simulation and Digital Human Modeling

Digital Twin Development and Deployment on the Cloud

Environmental Applications of Digital Terrain Modeling

An increasing complexity of models used to predict real-world systems leads to the need for algorithms to replace complex models with far simpler ones, while preserving the accuracy of the predictions. This three-volume handbook covers methods as well as applications. This third volume focuses on applications in engineering, biomedical engineering, computational physics and computer science.

By presenting the conditions, methods and techniques of monetisation of business models in the digital economy, this book combines implementation of the theoretical aspects of monetisation with the presentation of practical business solutions in this field. The scope of the book includes the relationship between the monetisation and scalability degree of business models. The book describes the place and role of the digital business ecosystem in the process of digital transformation. It demonstrates ideological and functional conditions for the use of the concept of sharing to design innovative business models while also presenting a multi-dimensional approach to the use of Big Data and their monetisation in the context of business models. Digital Business Models shows the place and role of ecological and social factors in building digital business models that are part of the concept of the circular economy and presents the contemporary conditions of a sustainability concept that meets the ethical challenges of doing digital business. It demonstrates how important the social factors of business model design and the creation of social value are in modern business and demonstrates. The book explores the servitisation of digital business models using digital technologies and features case studies on the effective solutions of business models that use servitisation as a factor supporting the monetisation of business models. Written for scholars exploring the efficiency and effectiveness of business models related to contemporary concepts – Sharing Economy, Circular Economy, Network Economy, Big Data, so on – and those designing business models taking into account social aspects, it will also be of direct interest to entrepreneurship courses.

While there is a rich array of urban theory, design, and representation books available, there is currently no book which brings together, in a single volume, urban design theory and new digital technologies in urban information mapping, modeling, and 3D simulation. Based on two decades of practicing and teaching architecture, author Brian McGrath's Digital Modelling for Urban Design explores the new theories and technologies of digital modelling, focusing on how to create moving and interactive 3D drawing, skills useful in the context of urban theory, and design and representation. Fully illustrated with original maps, 3D models, and drawings and photographs, this innovative work introduces digital modelling to students, architects, designers, and planners interested in the processes key to shaping the urban environment.

The success of a digital transformation is not a foregone conclusion. A digital transformation, as a highly complex process impacting major areas of an organization, requires a systematic approach that goes beyond individual transformation initiatives. This work analyses and integrates existing approaches to managing and coordinating a digital transformation in order to identify relevant success factors of a digital transformation, serving

as a basis for the development of a systematic framework for a management model of digital transformation. The analysis reveals ten success-critical focus areas of a digital transformation, which comprise numerous success factors: ‘Vision, goals, and strategies’, ‘Leadership’, ‘Communication’, ‘Digital culture and mindset’, ‘Digital platform’, ‘Partnership network’, ‘Capabilities, talents, and skills’, ‘Organization, coordination, and roles’, ‘Management methodologies’, and ‘Governance’. A systematic framework is proposed that serves as a foundation for the future development of a management model, addressed to executives and experts who are tasked with launching, driving, and sustaining a digital transformation.

Digital Modeling of Material Appearance

Introduction to Digital Systems

Drawing from the Model

Digital Modeling

Characterization and Modeling of Digital Circuits

Digital Terrain Modeling

Modeling the Imaging Chain of Digital Cameras

In a highly competitive market, digital transformation with internet of things, artificial intelligence, and other innovative technological trends are elements of differentiations and are important milestones in business development and consumer interaction, particularly in services. As a result, there are several new business models anchored in these digital and technological environments and new experiences provided to services consumers and firms that need to be examined. Impact of Digital Transformation on the Development of New Business Models and Consumer Experience provides relevant theoretical and empirical research findings and innovative and multifaceted perspectives on how digital transformation and other innovative technologies can drive new business models and create valued experiences for consumers and firms. Covering topics such as business models, consumer behavior, and gamification, this publication is ideal for industry professionals, managers, business owners, practitioners, researchers, professors, academicians, and students.

This innovative edited collection explores digital business models (DBMs) in theory and practice to contribute to knowledge of how companies, organizations and networks can design, implement and apply DBMs. It views DBMs in a range of contexts and forms, which can be integrated in a number of ways, and aims to inspire and enable academics, students and practitioners to seize the opportunities posed by digital business models, technologies and platforms. One of the first and comprehensive contributions to the field of DBMs and digital business model innovations (DBMI), the authors discuss the opportunities, challenges, technologies, implementation and value creation, customer and data protection processes of DBMs in different contexts.

Digital Twin Development and Deployment in the Cloud: Developing Cloud-Friendly Dynamic Models Using Simulink®/SimscapeTM and Amazon AWS promotes a physics-based approach to the field of digital twins. Through the use of multiphysics models running in the cloud, significant improvement to the diagnostics and prognostic of systems can be attained. The book draws a clear definition of digital twins, helping business leaders clearly identify the value it brings. In addition, it outlines the key elements needed for deployment, including the hardware and software tools needed. Special attention is paid to the process of developing and deploying the multi-physics models of the digital twins. Provides a high-level overview of digital twins and their underutilization in the field of asset management and maintenance Proposes a streamline process to create digital twins for a wide variety of applications using MATLAB® SimscapeTM Deploys developed digital twins on Amazon Web Services Includes MATLAB and Simulink codes available for free download on MATLAB central Covers popular prototyping hardwares, such as Arduino and Raspberry Pi

This publication is the first book on the development and application of digital terrain modeling for regional planning and policy support. It is a compilation of research results by international research groups at the European Commission ’ s Joint Research Centre, providing scientific support to the development and implementation of EU environmental policy. This practice-oriented book is recommended reading for practising environmental modelers and GIS experts working on regional planning and policy support applications.

The Digital Twin

Developing Cloud-Friendly Dynamic Models Using Simulink®/SimscapeTM and Amazon AWS

Modeling of Digital Communication Systems Using SIMULINK

Proceedings of the AHFE 2020 Virtual Conferences on Human Factors and Simulation, and Digital Human Modeling and Applied Optimization, July 16-20, 2020, USA

Designing Connected Content

Digital Representations of the Real World

Guiding the Successful Digitalization of Your Business Model

*With digital content published across more channels than ever before, how can you make yours easy to find, use, and share? Is your content ready for the next wave of content platforms and devices? In Designing Connected Content, Mike Atherton and Carrie Hane share an end-to-end process for building a structured content framework. They show you how to research and model your subject area based on a shared understanding of the important concepts, and how to plan and design interfaces for mobile, desktop, voice, and beyond. You will learn to reuse and remix your valuable content assets to meet the needs of today and the opportunities of tomorrow. Discover a design method that starts with content, not pixels. Master the interplay of content strategy, content design, and content management as you bring your product team closer together and encourage them to think content first. Learn how to Model your content and its underlying subject domain Design digital products that scale without getting messy Bring a cross-functional team together to create content that can be efficiently managed and effectively delivered Create a framework for tackling content overload, a multitude of devices, constantly changing design trends, and siloed content creation*

*This book considers signal processing and physical modeling meth ods for sound synthesis. Such methods are useful for example in mu sic synthesizers, computer sound cards, and computer games. Physical modeling synthesis has been commercialized for the first time about 10 years ago. Recently, it has been one of the most active research topics in musical acoustics and computer music. The authors of this book, Dr. Lutz Trautmann and Dr. Rudolf Rabenstein, are active researchers and inventors in the field of sound synthesis. Together they have developed a new synthesis technique, called the functional transformation method, which can be used for pro ducing musical sound in real time. Before this book, they have published over 20 papers on the topic in journals and conference proceedings. In this excellent textbook, the results are combined in a single volume. I believe that this will be considered an important step forward for the whole community.*

*A unique guide to using both modeling and simulation in digital systems design Digital systems design requires rigorous modeling and simulation analysis that eliminates design risks and potential harm to users. Introduction to Digital Systems: Modeling, Synthesis, and Simulation Using VHDL introduces the application of modeling and synthesis in the effective design of digital systems and explains applicable analytical and computational methods. Through step-by-step explanations and numerous examples, the author equips readers with the tools needed to model, synthesize, and simulate digital principles using Very High Speed Integrated Circuit Hardware Description Language (VHDL) programming. Extensively classroom-tested to ensure a fluid presentation, this book provides a comprehensive overview of the topic by integrating theoretical principles, discrete mathematical models, computer simulations, and basic methods of analysis. Topical coverage includes: Digital systems modeling and simulation Integrated logic Boolean algebra and logic Logic function optimization Number systems Combinational logic VHDL design concepts Sequential and synchronous sequential logic Each chapter begins with learning objectives that outline key concepts that follow, and all discussions conclude with problem sets that allow readers to test their comprehension of the presented material. Throughout the book, VHDL sample codes are used to illustrate circuit design, providing guidance not only on how to learn and master VHDL programming, but also how to model and simulate digital circuits. Introduction to Digital Systems is an excellent book for courses in modeling and simulation, operations research, engineering, and computer science at the upper-undergraduate and graduate levels. The book also serves as a valuable resource for researchers and practitioners in the fields of operations research, mathematical modeling, simulation, electrical engineering, and computer science.*

*Is digitalization a value-added approach? Global leaders believe so, and this book reveals how to digitally transform your business model and compete in today’s economy. It presents a roadmap consisting of five phases; Digital Reality, Digital Ambition, Digital Potential, Digital Fit, and Digital Implementation, each with step-by-step instructions as well as innovative activities and tools. This is a timely book offering professionals a concise, tried-and-trusted guide to the digital transformation of business models.*

*Digital Human Modeling. Applications in Health, Safety, Ergonomics and Risk Management*

*Lessons Learned from Industry 4.0 Across Europe*

*The Digital Transformation Playbook*

*Analysis and Definition of Success Factors for the Development of a Management Framework*

*Digital Business Models*

#### *Advances in Applied Digital Human Modeling and Simulation*

Design, plan, and simulate landscapes with computer modeling tools If you want to model how waterflows will be affected by an upstream dam, or how vegetation growth will respond to irrigation, state-of-the-art Landscape Modeling is for you! Developed by pre-eminent Harvard landscape architects Stephen Ervin and Hope Hasbrouck, it ’ s the first-ever guide to integrating the two-dimensional capabilities of geographic information systems (GIS) and three-dimensional CAD systems in landscape planning. This resource brings together all the technical tools you need to analyze and manipulate landforms digitally, together with the contextual information needed to apply these tools for small- and large-scale land uses, from gardens to regional plans. You get: Techniques for analyzing, evaluating, designing, planning, and simulating specific landscape types and elements such as water, terrain, and vegetation A CD loaded with interactive modeling formulas and algorithms, plus demo versions of key GIS and CAD softwares for land elements, together with how-to instructions Full color international case studies with site plans, photographs, simulations, sound and other landscape effects, and virtual environments

This book provides a comprehensive overview of characterization techniques and advanced modeling of VLSI circuits for modern and advanced process nodes for timing, power, noise and variation models. Intended audience includes research professionals, graduate students, circuit and PDK designers, characterization engineers, CAD developers, managers, mentors, and the merely curious. It is organized to serve as a compendium to a beginner, a ready reference to intermediate and source for an expert.

Digital Human Modeling and Medicine explores the body of knowledge and state-of-the-art in Digital Human Modeling (DHM) and its applications in medicine. DHM is the science of representing humans with their physical properties, characteristics and behaviors in computerized, virtual models. These models can be used standalone or integrated with other computerized object design systems to both design or study designs of medical devices or medical device products and their relationship with humans. They serve as fast and cost-efficient computer based tools for the assessment of human functional systems and human-system interaction. This book provides an industry first introductory and practitioner focused overview of human simulation tools, with detailed chapters describing body functional elements and organs, organ interactions and fields of application. Thus, DHM tools and a specific scientific/practical problem - functional study of the human body - are linked in a coherent framework. Eventually the book shows how DHM interfaces with common physical devices in medical practice, answering to a gap in literature and a common practitioner question. Case studies provide the applied knowledge for practitioners to make informed decisions. A non-specialist level, up-to-date overview and introduction to all medically relevant DHM systems to inform trialing, procurement decisions and initial application Includes user-level examples and case studies of DHM applications in various medical fields Clearly structured and focused compendium that is easy to access, read and understand

The process by which an image is formed, processed, and displayed can be conceptualized as a chain of physical events called the imaging chain. By mathematically modeling the imaging chain, we can gain insight into the relationship between the camera design parameters and the resulting image quality. The mathematical models can also be used to optimize and assess the design of a camera for specific applications before expenditures are committed to building hardware. Modeling the Imaging Chain of Digital Cameras teaches the key elements of the end-to-end imaging chain for digital camera systems and describes how elements of the imaging chain are mathematically modeled using the basics of linear systems mathematics and Fourier transforms. The emphasis is on general digital cameras designed to image incoherent light in the visible imaging spectrum. The reader will learn how digital camera design parameters are related to the elements of the imaging chain and how they influence the resulting image quality. The book also discusses the use of imaging chain models to simulate images from different digital camera designs for image quality evaluations.

Research for Applied Ergonomics and Human Factors Engineering

Impact of Digital Transformation on the Development of New Business Models and Consumer Experience

Architectural Scale Models in the Digital Age

Digital Techniques for Landscape Visualization

Digital Modeling and Digital Control of Continuous-time Uncertain Systems

How to Capture, Model, and Render Visual Reality

An Ecosystem Approach

*Computer graphics systems are capable of generating stunningly realistic images of objects that have never physically existed. In order for computers to create these accurately detailed images, digital models of appearance must include robust data to give viewers a credible visual impression of the depicted materials. In particular, digital models demonstrating the nuances of how materials interact with light are essential to this capability. Digital Modeling of Material Appearance is the first comprehensive work on the digital modeling of material appearance: it explains how models from physics and engineering are combined with keen observation skills for use in computer graphics rendering. Written by the foremost experts in appearance modeling and rendering, this book is for practitioners who want a general framework for understanding material modeling tools, and also for researchers pursuing the development of new modeling techniques. The text is not a “how to” guide for a particular software system. Instead, it provides a thorough discussion of foundations and detailed coverage of key advances. Practitioners and researchers in applications such as architecture, theater, product development, cultural heritage documentation, visual simulation and training, as well as traditional digital application areas such as feature film, television, and computer games, will benefit from this much needed resource. ABOUT THE AUTHORS Julie Dorsey and Holly Rushmeier are professors in the Computer Science Department at Yale University and co-directors of the Yale Computer Graphics Group. François Sillion is a senior researcher with INRIA (Institut National de Recherche en Informatique et Automatique), and director of its Grenoble Rhône-Alpes research center. First comprehensive treatment of the digital modeling of material appearance Provides a foundation for modeling appearance, based on the physics of how light interacts with materials, how people perceive appearance, and the implications of rendering appearance on a digital computer An invaluable, one-stop resource for practitioners and researchers in a variety of fields dealing with the digital modeling of material appearance*

*This book constitutes the refereed proceedings of the First International Conference on Digital Human Modeling, DHM 2007, held in Beijing, China in July 2007. The papers thoroughly cover the thematic area of digital human modeling, addressing the following major topics: shape and movement modeling and anthropometry, building and applying virtual humans, medical and rehabilitation applications, as well as industrial and ergonomic applications.*

*Digital ModelingNew Riders*

*The spread of the Internet into all areas of business activities has put a particular focus on business models. The digitalization of business processes is the driver of changes in company strategies and management practices alike. This textbook provides a structured and conceptual approach, allowing students and other readers to understand the commonalities and specifics of the respective business models. The book begins with an overview of the business model concept in general by presenting the development of business models, analyzing definitions of business models and discussing the significance of the success of business model management. In turn, Chapter 2 offers insights into and explanations of the business model concept and provides the underlying approaches and ideas behind business models. Building on these foundations, Chapter 3 outlines the fundamental aspects of the digital economy.*

*In the following chapters the book examines various core models in the business to consumer (B2C) context. The chapters follow a 4-C approach that divides the digital B2C businesses into models focusing on content, commerce, context and connection. Each chapter describes one of the four models and provides information on the respective business model types, the value chain, core assets and competencies as well as a case study. Based on the example of Google, Chapter 8 merges these approaches and describes the development of a hybrid digital business model. Chapter 9 is dedicated to business-to-business (B2B) digital business models. It shows how companies focus on business solutions such as online provision of sourcing, sales, supportive collaboration and broker services. Chapter 10 shares insight into the innovation aspect of digital business models, presenting structures and processes of digital business model innovation. The book is rounded out by a comprehensive case study on Google/Alphabet that combines all aspects of digital business models. Conceived as a textbook for students in advanced undergraduate courses, the book will also be useful for professionals and practitioners involved in business model innovation, and applied researchers.*

*34 Tenets for Masterfully Merging Technology and Business*

*Second Edition*

*Perspectives on Monetisation*

*Fundamentals of Digital Drawing, 3D Modeling, and Visual Programming in Architectural Design*

*Management Models of Digital Transformation*

*Handbook of Digital Human Modeling*

*Applications*

This book, Advances in Applied Digital Human Modeling, is concerned with Modeling, Biomechanics and Simulation. The benefit of this area of research is to aid in the design of systems. Human modeling and simulation can reduce the need for physical prototyping and incorporate ergonomics and human factors earlier in design processes. These models provide a representation of some human aspects that can be inserted into simulations or virtual environments and facilitate prediction of safety, satisfaction, usability, performance and sustainability. These may consider the physiological, cognitive, behavioral, emotional and environmental aspects. The math and science provides a foundation for visualizations that can facilitate decision making by technical experts, management or those responsible for public policy.

The rapid introduction of sophisticated computers, services, telecommunications systems, and manufacturing systems has caused a major shift in the way people use and work with technology. It is not surprising that computer-aided modeling has emerged as a promising method for ensuring products meet the requirements of the consu

The Handbook of Digital Human Modeling provides comprehensive coverage of the theory, tools, and methods to effectively achieve this objective. The 56 chapters in this book, written by 113 contributing authorities from Canada, China, France, Germany, the Netherlands, Poland, Sweden, Taiwan, UK, and the US, provide a wealth of international knowledge and guidelines. They cover applications in advanced manufacturing, aerospace, automotive, data visualization and simulation, defense and military systems, design for impaired mobility, healthcare and medicine, information systems, and product design. The text elucidates tools to help evaluate product and work design while reducing the need for physical prototyping. Additional software and demonstration materials on the CRC Press web site include a never-before-released 220-page step-by-step UGS-Siemens JackTM help manual developed at Purdue University. The current gap between capability to correctly predict outcomes and set expectations for new and existing products and processes affects human-system performance, market acceptance, product safety, and satisfaction at work. The handbook provides the fundamental concepts and tools for digital human modeling and simulation with a focus on its foundations in human factors and ergonomics. The tools identified and made available in this handbook help reduce the need for physical prototyping. They enable engineers to quantify acceptability and risk in design in terms of the human factors and ergonomics.

Written by experts, Digital Terrain Modeling: Principles and Methodology provides comprehensive coverage of recent developments in the field. The topics include terrain analysis, sampling strategy, acquisition methodology, surface modeling principles, triangulation algorithms, interpolation techniques, on-line and off-line quality control in data acquisition, DTM accuracy assessment and mathematical models for DTM accuracy prediction, multi-scale representation, data management, contouring, visual analysis (or visualization), the derivation of various types of terrain parameters, and future development and applications.

In recent years, digital business models have frequently been the subject of academic and practical discourse. The increasing interconnectivity across the entire supply chain, which is subsumed under the term Industry 4.0, can unlock even farther-reaching potentials for digital business models, affecting entire supply chains and ecosystems. This book examines the specific challenges and obstacles that supply chain and ecosystem management poses with regard to the development of digital business models. The top-quality contributions gathered here focus on the successful implementation of Industry 4.0 in digital business models for industrial organizations in a European context, making the book a valuable asset for researchers and practitioners alike.

Digital Transformation Game Plan

Digital Human Modeling and Medicine

Digital Business Models in Industrial Ecosystems

Semi-empirical Neural Network Modeling and Digital Twins Development

5th International Conference, DHM 2014, Held as Part of HCI International 2014, Heraklion, Crete, Greece, June 22-27, 2014, Proceedings

Concepts, Models, and the Alphabet Case Study

Principles and Methodology

*Rethink your business for the digital age. Every business begun before the Internet now faces the same challenge: How to transform to compete in a digital economy? Globally recognized digital expert David L. Rogers argues that digital transformation is not about updating your technology but about upgrading your strategic thinking. Based on Rogers's decade of research and teaching at Columbia Business School, and his consulting for businesses around the world, The Digital Transformation Playbook shows how pre-digital-era companies can reinvigorate their game plans and capture the new opportunities of the digital world. Rogers shows why traditional businesses need to rethink their underlying assumptions in five domains of strategy—customers, competition, data, innovation, and value. He reveals how to harness customer networks, platforms, big data, rapid experimentation, and disruptive business models—and how to integrate these into your existing business and organization. Rogers illustrates every strategy in this playbook with real-world case studies, from Google to GE, from Airbnb to the New York Times. With practical frameworks and nine step-by-step planning tools, he distills the lessons of today's greatest digital innovators and makes them usable for businesses at any stage. Many books offer advice for digital start-ups, but The Digital Transformation Playbook is the first complete treatment of how legacy businesses can transform to thrive in the digital age. It is an indispensable guide for executives looking to take their firms to the next stage of profitable growth.*

*This book constitutes the refereed proceedings of the 5th International Conference on Digital Human Modeling and Applications in Health, Safety, Ergonomics and Risk Management 2014, held as part of the 16th International Conference on Human-Computer Interaction, HCII 2014, held in Heraklion, Crete, Greece in June 2014, jointly with 13 other thematically conferences. The total of 1476 papers and 220 posters presented at the HCII 2014 conferences were carefully reviewed and selected from 4766 submissions. These papers address the latest research and development efforts and highlight the human aspects of design and use of computing systems. The papers accepted for presentation thoroughly cover the entire field of Human-Computer Interaction, addressing major advances in knowledge and effective use of computers in a variety of application areas. The 65 papers included in this volume are organized in topical sections on modeling posture and motion; anthropometry, design and ergonomics; ergonomics and human modeling in work and everyday life environments; advances in healthcare; rehabilitation applications; risk, safety and emergency.*

*Development and Applications in a Policy Support Environment*