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BIM in the Construction Industry SME

New technologies in 3D printing offer innovative capabilities in surgery, from planning complex operations to providing alternatives to traditional training with more cost-effective outcomes. In *3D Printing: Application in Medical Surgery, Volume 2*, Drs. Vasileios N. Papadopoulos, Vassilios Tsioukas, and Jasjit S. Suri bring together up-to-date information on 3D printing and its application in surgical specialties such as hepatobiliary and pancreatic surgery, vascular surgery, orthopedic surgery, obstetrics and gynecology, cardiovascular and thoracic surgery, and more. Discusses challenges and opportunities of 3D printing in the field of surgery. Covers 3D printing and its application in major surgical subspecialties, as well as dentistry, transplantation, global surgery, and diagnostic and interventional radiology. Consolidates today's available information on this burgeoning topic into a single convenient resource.

Advanced 3D-Printed Systems and Nanosystems for Drug Delivery and Tissue Engineering John Wiley & Sons

A universal approach to the ontology of geographic space has already been, and is going to be, a comprehensive task for establishing more effective spatial models. The concept of a universal spatial ontology should be independent of location, culture, and time. It should be fundamental and universal in the same way that the number π defines the ratio between the diameter and the circumference of a circle. The term "universal" therefore means all-embracing and for general propose. *Universal Ontology of Geographic Space: Semantic Enrichment for Spatial Data* aims to escalate the current scope of research to support the development of semantically interoperable systems of geographic space. This reference will aid university lecturers and professors, students, researchers, developers of spatial applications.

Advances in Additive Manufacturing, Modeling Systems and 3D Prototyping CRC Press

This Research Agenda provides both a state-of-the-art review of existing research on city-regions, and expands on new research approaches. Expert contributors from across the globe explore key areas for reading city-regions, including: trade, services and people, regional differentiation, big data, global production networks, governance and policy, and regional development. The book focuses on developing a more integrated and systematic approach to reading city-regions as part of regeneration economics, identifying conceptual and methodological developments in this field of study.

Tunnels and Underground Cities. Engineering and Innovation Meet Archaeology, Architecture and Art John Wiley & Sons

Tunnels and Underground Cities: Engineering and Innovation meet Archaeology, Architecture and Art contains the contributions presented at the World Tunnel Congress 2019 (Naples, Italy, 3-9 May 2019). The use of underground space is continuing to grow, due to global urbanization, public demand for efficient transportation, and energy saving, production and distribution. The growing need for space at ground level, along with its continuous value increase and the challenges of energy saving and achieving sustainable development objectives, demand greater and better use of the underground space to ensure that it supports sustainable, resilient and more liveable cities. This vision was the source of inspiration for the design of the logos of both the International (ITA) and Italian (SIG) Tunnelling Association. By placing key infrastructures underground – the black circle in the logos – it will be possible to preserve and enhance the quality of the space at ground level – the green line. In order to consider and value underground space usage together with human and social needs, engineers, architects, and artists will have to learn to collaborate and develop an interdisciplinary design approach that addresses functionality, safety, aesthetics and quality of life, and adaptability to future and varied functions. The 700 contributions cover a wide range of topics, from more traditional subjects connected to technical challenges of design and construction of underground works, with emphasis on innovation in tunneling engineering, to less conventional and archetypically Italian themes such as archaeology, architecture, and art. The book has the following main themes: Archaeology, Architecture and Art in underground construction; Environment sustainability in underground construction; Geological and geotechnical knowledge and requirements for project implementation; Ground improvement in underground constructions; Innovation in underground engineering, materials and equipment; Long and deep tunnels; Public communication and awareness; Risk management, contracts and financial aspects; Safety in underground construction; Strategic use of underground space for resilient cities; Urban tunnels. *Tunnels and Underground Cities: Engineering and Innovation meet Archaeology, Architecture and Art* is a valuable reference text for tunneling specialists, owners, engineers, architects and others involved in underground planning, design and building around the world, and for academics who are interested in underground constructions and geotechnics.

Temporary Anchorage Devices in Clinical Orthodontics Springer Science & Business Media

This collection of papers on research into and management of underground structures in salt formations represents the state-of-the-art on applications of salt mechanics in mines and storage caverns for gas/hydrocarbon, radioactive waste and toxic waste disposal. The contributions cover laboratory experiments, constitutive numerical modeling and fie

Semantic Enrichment for Spatial Data Routledge

3D and 4D Printing of Polymer Nanocomposite Materials: Processing, Applications, and Challenges covers advanced 3D and 4D printing processes and the latest developments in novel polymer-based printing materials, thus enabling the reader to understand and benefit from the advantages of this groundbreaking technology. The book presents processes, materials selection, and printability issues, along with sections on the preparation of polymer composite materials for 3D and 4D printing. Across the book, advanced printing techniques are covered and discussed thoroughly, including fused deposition modeling (FDM), selective laser sintering (SLS), selective laser melting (SLM), electron beam melting (EBM), inkjet 3D printing (3DP), stereolithography (SLA), and 3D plotting. Finally, major applications areas are discussed, including electronic, aerospace, construction and biomedical applications, with detailed information on the design, fabrication and processing methods required in each case. Provides a thorough, clear understanding of polymer preparation techniques and 3D and 4D printing processes, with a view to specific applications Examines synthesis, formation methodology, the dispersion of fillers, characterization, properties, and performance of polymer nanocomposites Explores the possibilities of 4D printing, covering the usage of stimuli responsive hydrogels and shape memory polymers

Principles and Applications LetteraVentidue

Advanced 3D-Printed Systems and Nanosystems for Drug Delivery and Tissue Engineering explores the intricacies of nanostructures and 3D printed systems in terms of their design as drug delivery or tissue engineering devices, their further evaluations and diverse applications. The book highlights the most recent advances in both nanosystems and 3D-printed systems for both drug delivery and tissue engineering applications. It discusses the convergence of biofabrication with nanotechnology, constructing a directional customizable biomaterial arrangement for promoting tissue regeneration, combined with the potential for controlled bioactive delivery. These discussions provide a new viewpoint for both biomaterials scientists and pharmaceutical scientists. Shows how nanotechnology and 3D printing are being used to create systems which are intelligent, biomimetic and customizable to the patient Explores the current generation of nanostructured 3D printed medical devices Assesses the major challenges of using 3D printed nanosystems for the manufacture of new pharmaceuticals

Autodesk Authorized Publisher CRC Press

This book introduces researchers and practitioners to Cyber-Physical Systems (CPS) and its applications in the built environment. It begins with a fundamental introduction to CPS technology and associated concepts. It then presents numerous examples of applications from managing construction projects to smart transportation systems and smart cities. It concludes with a discussion of future directions for CPS deployment in the construction, operation and maintenance of constructed facilities. Featuring internationally recognized experts as contributors, *Cyber-Physical Systems in the Built Environment*, is an ideal resource for engineers, construction managers, architects, facilities managers, and planners working on a range of building and civil infrastructure projects.

3D Printing in Medicine and Surgery John Wiley & Sons

Autodesk® Inventor® 2019: Working with 3D Annotations & Model-Based Definition teaches experienced Autodesk Inventor users how to create 3D annotations to support the visual presentation of annotations in 3D PDF format and a Model-based Definition (MBD) workflow. The geometry designed in a 3D CAD modeling environment is created perfectly. During the manufacturing stage, it is not possible to achieve the same perfection. Variations in size, feature location, and orientation are unavoidable. This learning guide instructs how to use the tools in Autodesk Inventor 2018 to create 3D annotations that communicate dimensional and GD&T data, hold/thread notes, surface texture requirements, and informational text-based annotations; all of which aim to improve manufacturing accuracy. Additionally, this learning guide explains how you can share your 3D annotated models as 3D PDFs, as STEP files for use by other software applications, or in 2D drawing views. Topics Covered: Creating dimensional annotations. Creating hole/thread note annotations. Creating surface texture annotations. Creating text-based annotations to a model to communicate additional modeling information. Creating tolerance features to a model. Using the Tolerance Advisor to review informational messages and warnings on the tolerance features in a model. Creating a general profile note annotation. Prerequisites: Access to the 2019 version of the software. The practices and files included with this guide might not be compatible with prior versions. Knowledge of GD&T required. The international GD&T standard, ASME Y14.5M-2009, governs how annotations should be added to clearly describe the model's intent. This learning guide assumes that you know how the model is to be annotated and aims to only explain how they are added using the Autodesk Inventor software. Students should have completed the Autodesk® Inventor® 2019: Introduction to Solid Modeling learning guide or have an equivalent understanding of the Autodesk Inventor user interface and working environments.

Monthly Catalogue, United States Public Documents Springer Nature

The Routledge Companion to Paradigms of Performativity in Design and Architecture focuses on a non-linear, multilateral, ethical way of design thinking, positioning the design process as a journey. It expands on the multiple facets and paradigms of performative design thinking as an emerging trend in design methodology. This edited collection explores the meaning of performativity by examining its relevance in conjunction with three fundamental principles: firmness, commodity and delight. The scope and broader meaning of performativity, performative architecture and performance-based building design are discussed in terms of how they influence today's design thinking. With contributions from 45 expert practitioners, educators and researchers, this volume engages theory, history, technology and the human aspects of performative design thinking and its implications for the future of design.

Suspended Living in Temporary Space Springer

3D Printing in Medicine and Surgery: Applications in Healthcare is an advanced book on surgical and enhanced medical applications that can be achieved with 3D printing. It is an essential handbook for medical practitioners, giving access to a range of practical methods, while also focusing on applied knowledge. This comprehensive resource features practical experiments and processes for preparing 3D printable materials. Early chapters cover foundational knowledge and background reading, while later chapters discuss and review the current technologies used to engineer specific tissue types, experiments and methods, medical approaches and the challenges that lie ahead for future research. The book is an indispensable reference guide to the various methods used by current medical practitioners working at the forefront of 3D printing applications in medicine. Provides a detailed introduction and narrative on how 3-D printing can be used towards developing future medicine-based therapies Covers up-to-date methods across a range of application areas for the first time in book form Presents the only book on all current areas of 3D printing in medicine that is catered to a medical rather than engineering audience

Processes, Applications, and Challenges Routledge

This book presents the proceedings of the International Conference on Durability of Critical Infrastructure. Monitoring and Testing held in Satov, Czech Republic from 6 to 9 December 2016. It discusses the developments in the theoretical and practical aspects in the fields of Safety, Sustainability and Durability of the Critical Infrastructure. The contributions are dealing with monitoring and testing of structural and composite materials with a new methods for their using for protection and prevention of the selected objects.

Computers Helping People with Special Needs Springer

Your timely source for more cost-effective and less disruptive solutions to your underground infrastructure needs. The North American Tunneling Conference is the premier biennial tunneling event for North America, bringing together the brightest, most resourceful, and innovative minds in the tunneling industry. It underscores the important role that the industry plays in the development

of underground spaces, transportation and conveyance systems, and other forms of sustainable underground infrastructure. With every conference, the number of attendees and breadth of topics grow. The authors—experts and leaders in the industry—share the latest case histories, expertise, lessons learned, and real-world applications from around the globe. Crafted from a collection of 126 papers presented at the conference, this book takes you deep inside the projects. It includes challenging design issues, fresh approaches on performance, future projects, and industry trends as well as ground movement and support, structure analysis, risk and cost management, rock tunnels, caverns and shafts, TBM technology, and water and wastewater conveyance.

Gesture-Based Communication in Human-Computer Interaction Springer

A fully updated second edition of this well-illustrated guide to advanced surgical procedures in periodontology *Practical Advanced Periodontal Surgery, Second Edition* is a step-by-step guide to cutting-edge surgical techniques and interdisciplinary treatment approaches in periodontology. Written by leading experts in the field, the book provides solutions to complex daily dental challenges with innovative approaches to each treatment modality. Procedures are described in a practical and accessible style, highlighting complex and advanced procedures using a highly illustrated visual format. This expanded edition includes three new chapters that cover IV sedation, digital technologies in clinical restorative dentistry, and advanced implant therapies in the esthetic zone post extraction. Well balanced and solidly grounded in the science, this reference work is an indispensable resource for the practitioner of advanced dentistry. This important guide: • Offers an easy-to-use, practical step-by-step format • Contains clinical photographs that detail the surgical procedures presented • Reviews the most advanced techniques in periodontal surgery and their integration with digital treatment planning and workflow • Discusses the pros and cons for each procedure, as well as limitations and potential complications • Features video clips illustrating key points in the procedures described on a companion website Written for periodontists, periodontal residents and general or restorative dentists, this revised edition of *Practical Advanced Periodontal Surgery* is a practical and complete clinical manual filled with illustrations for easy reference.

A Guide to Building Information Modeling for Owners, Managers, Designers, Engineers and Contractors Springer Nature

On 9th October 2017, the international conference *Suspended Living in Temporary Space* was held at the headquarters of the Architecture School of the Polytechnic of Turin. Some scholars, architects but not only, have found themselves reflecting on the role of the architect and architecture within the almost apocalyptic scenario of the great migratory waves following disasters and emergencies, with specific attention to the context of the Mediterranean area. In this scenario, there are those who flee alone and with the whole family, people who leave a promising profession and others who leave almost nothing; unaccompanied minors and adults. For everyone, we must, first and foremost, guarantee the fundamental right of a refuge. It is easy to see how many studies, idea competitions, experimental projects carried out by architects to tackle this problem, but if we refer to common practice, then we must recognize that the role of architecture as a discipline has been decidedly secondary. The contributions collected here testify to this double track, where the most innovative experiments haven't often interfered with the reality of the facts. The origin of the participants at this conference, Turkey, Spain, Tunisia and Italy, also underlined how the problem of housing emergency is particularly felt and debated in these countries also within the universities.

3D Printing: Application in Medical Surgery Volume 2 E-Book Springer

This book discusses the latest advances in digital modeling systems (DMSs) and additive manufacturing (AM) technologies. It covers applications of networked technologies, ubiquitous computing, new materials and hybrid production systems, discussing how they are changing the processes of conception, modeling and production of products and systems of product. The book emphasizes ergonomic and sustainability issues, as well as timely topics such as DMSs and AM in Industry 4.0, DMSs and AM in developing countries, DMSs and AM in extreme environments, thus

highlighting future trends and promising scenarios for further developing those technologies. Based on the AHFE 2019 International Conference on Additive Manufacturing, Modeling Systems and 3D Prototyping, held on July 24-28, 2019, in Washington D.C., USA, the book is intended as source of inspiration for researchers, engineers and stakeholders, and to foster interdisciplinary and international collaborations between them.

Universal Ontology of Geographic Space: Semantic Enrichment for Spatial Data CRC Press

This introductory book discusses how to plan and build useful, reliable, maintainable and cost efficient computer systems for automated engineering design. The book takes a user perspective and seeks to bridge the gap between texts on principles of computer science and the user manuals for commercial design automation software. The approach taken is top-down, following the path from definition of the design task and clarification of the relevant design knowledge to the development of an operational system well adapted for its purpose. This introductory text for the practicing engineer working in industry covers most vital aspects of planning such a system. Experiences from applications of automated design systems in practice are reviewed based on a large number of real, industrial cases. The principles behind the most popular methods in design automation are presented with sufficient rigour to give the user confidence in applying them on real industrial problems. This book is also suited for a half semester course at graduate level and has been complemented by suggestions for student assignments grown out of the lecture notes of two postgraduate courses given annually or biannually during the last ten years at the Product development program at the School of Engineering at Jönköping University.

Applications in Healthcare Lulu.com

This book contains 19 peer-reviewed papers on the subject of BIM in the construction industry. These articles cover recent advances in the development of BIM technologies and applications in the field of architecture, engineering, and construction (AEC) industry.

Cyber-Physical Systems in the Built Environment ASCENT - Center for Technical Knowledge

3D Face Processing: Modeling, Analysis and Synthesis introduces the frontiers of 3D face processing techniques. It reviews existing 3D face processing techniques, including techniques for 3D face geometry modeling; 3D face motion modeling; and 3D face motion tracking and animation. Then it discusses a unified framework for face modeling, analysis and synthesis. In this framework, the authors present new methods for modeling complex natural facial motion, as well as face appearance variations due to illumination and subtle motion. Then the authors apply the framework to face tracking, expression recognition and face avatar for HCI interface. They conclude this book with comments on future work in the 3D face processing framework. *3D Face Processing: Modeling, Analysis and Synthesis* will interest those working in face processing for intelligent human computer interaction and video surveillance. It contains a comprehensive survey on existing face processing techniques, which can serve as a reference for students and researchers. It also covers in-depth discussion on face motion analysis and synthesis algorithms, which will benefit more advanced graduate students and researchers.

3D Face Processing IGI Global

The book introduces the reader to game-changing ways of building and utilizing Internet-based services related to design and manufacture activities through the cloud. In a broader sense, CBDM refers to a new product realization model that enables collective open innovation and rapid product development with minimum costs through social networking and negotiation platforms between service providers and consumers. It is a type of parallel and distributed system consisting of a collection of inter-connected physical and virtualized service pools of design and manufacturing resources as well as intelligent search capabilities for design and manufacturing solutions. Practicing engineers and decision makers will learn how to strategically position their product development operations for success in a globalized interconnected world.