Virtual Reality In Healthcare Education

RAMOS RIVERS

Virtual and Augmented Reality in Mental Health Treatment Routledge
With the current advances in technology innovation, the field of medicine and healthcare is rapidly expanding and, as a result, many different areas of human health diagnostics, treatment and care are emerging. Wireless technology is getting faster and 5G mobile technology allows the Internet of Medical Things (IoMT) to greatly improve patient care and more effectively prevent illness from developing. This book provides an overview and review of the current and anticipated changes in medicine and healthcare due to new technologies and faster communication between users and devices. This groundbreaking book presents state-of-the-art chapters on many subjects including: A review of the implications of VR and AR healthcare applications A review of current augmenting dental care An overview of typical human-computer interaction (HCI) that can help inform the development of user interface designs and novel ways to evaluate human behavior to responses in virtual reality (VR) and other new technologies A review of telemedicine technologies Building empathy in young children using augmented reality AI technologies for mobile health of stroke monitoring & rehabilitation robotics control Mobile doctor brain AI App An artificial intelligence mobile cloud computing tool Development of a robotic teaching aid for disabled children Training system design of lower limb rehabilitation robot based on virtual reality
Cases on Virtual Reality Modeling in Healthcare Rowman & Littlefield
Cinematic Virtual Reality brings a combination of documentary, narrative and game design principles to the medical profession and, in the healthcare arena, collaboration is a key component for creating intellectually- and emotionally- rich immersive experiences. The Power of Virtual Reality Cinema for Healthcare Training gathers more than a dozen experts from both the production and healthcare fields to break down best practices for creating successful cine-VR projects. Designed for multi-disciplinary teams interested in integrating cine-VR production into their healthcare training and educational programs, this book has been written for two audiences: the healthcare professional interested in what production experts consider when approaching a project, and the media expert curious about how this new technology can be used in the medical field. Highlights include: Cutting edge medical education techniques developed by Ohio University's GRID Lab, including: PREality (creating a forced sense of deja-vu to increase acclimation time), a unique approach to eye-tracking to enhance team performance, and the low-CRIS technique (a low-cost rapid implementation strategy to capture patient care for rapid graduate student training). Insightful production techniques that will enhance your cine-VR projects including advanced plating methods to hide lighting set-ups, immersive audio considerations, and new ways to consider 360 storytelling including the Lovrick montage and the Christmas Carol continuum for story development. Detailed explanations of the production considerations and results of specific cine-VR productions (from funding approaches to distribution) including access to more than five hours of cine-VR examples of the actual productions available for download. Details on a wide variety of medical cine-VR projects, including 100 images that illustrate best practices for topics such as recording in active medical facilities, building successful multi-disciplinary teams, working within HIPAA regulations, conceptualizing cine-VR libraries for graduate education, and implementing innovative distribution models.
New Perspectives on Virtual and Augmented Reality IGI Global
A physician who is treating a patient confronts a complex and incompletely understood living system that is sensitive to pain. An engineer or programmer who develops a new device, on the other hand, operates within the less emotional domains of materials and mathematics. The Medicine Meets Virtual Reality (MMVR) conference brings together physicians, scientists, engineers, educators, students, and others to bridge the gap between clinicians and technologists, and to create collaborative solutions to healthcare challenges. This book presents the proceedings of the Medicine Meets Virtual Reality conference (MMVR19), held in Newport Beach, California, USA, in February 2012. It includes papers on modeling and simulation, imaging, data visualization and fusion, haptics, robotics, telemedicine and medical intelligence networking, virtual and augmented reality, psychotherapy and physical rehabilitation tools, serious games, and other topics. MMVR stimulates interaction between developers and end users and promotes unorthodox problem-solving as a complement to rigorous scientific methodology. This book will interest all who are involved with the future of medicine. close
Current and Prospective Applications of Virtual Reality in Higher Education John Wiley & Sons
With the rapid advances of technology, visualisation in the sciences using computers, is a rapidly expanding and evolving area. Visualisation in its broadest sense represents how objects, situations, applications, methodologies and information can be seen and presented. This proposal is to incorporate work in the field of biomedical visualisation and will encompass techniques of using computers to visualise information. This will include photogrammetry, virtual and augmented reality, 3D printing, e-tutorial and website design and digital reconstructions and animations. It will showcase research, innovations and current work in the field of biomedicine, life sciences, veterinary medicine and computing sciences presenting data in an innovative and engaging way to showcase complex data and information in an easier to access format.
Comprehensive Healthcare Simulation: Operations, Technology, and Innovative Practice Pearson
This book presents the proceedings of the 21st NextMed/MMVR conference, held in Manhattan Beach, California, in February 2014. These papers describe recent developments in medical simulation, modeling, visualization, imaging, haptics, robotics, sensors, interfaces, and other IT-enabled technologies that benefit healthcare. The wide range of applications includes simulation for medical education and surgical training, information-guided therapies, mental and physical rehabilitation tools, and intelligence networks. Since 1992, Nextmed/MMVR has engaged the problem-solving abilities of scientists, engineers, clinicians, educators, the military, students, and healthcare futurists. Its multidisciplinary participation offers a fresh perspective on how to make patient care and medical education more precise and effective.
Emerging Advancements for Virtual and Augmented Reality in Healthcare Springer
Medical and technological organizations have recently developed therapy and assistance solutions that venture beyond what is considered conventional for individuals with various mental health conditions and behavioral disorders such as autism, Down syndrome, Alzheimer’s disease, anxiety disorders, phobias, and learning difficulties. Through the use of virtual and augmented reality, researchers are working to provide alternative therapy methods to treat these conditions, while studying the long-term effects the treatment has on patients. Virtual and Augmented Reality in Mental Health Treatment provides innovative insights into the use and durability of virtual reality as a treatment for various behavioral and emotional disorders and health problems. The content within this publication represents the work of e-learning, digital psychology, and quality of care. It is designed for psychologists, psychiatrists, professionals, medical staff, educators, and researchers, and covers topics centered on medical and therapeutic applications of artificial intelligence and simulated environment.
Virtual, Augmented Reality and Serious Games for Healthcare 1 IOS Press
Modern technology has infiltrated many facets of society, including educational environments. Through the use of virtual learning, educational systems can become more efficient at teaching the student population and break down cost and distance barriers to reach populations that traditionally could not afford a good education. Virtual Reality in Education: Breakthroughs in Research and Practice is an essential reference source on the uses of virtual reality in K-12 and higher education classrooms with a focus on pedagogical and instructional outcomes and strategies. Highlighting a

range of pertinent topics such as immersive virtual learning environments, virtual laboratories, and distance education, this publication is an ideal reference source for pre-service and in-service teachers, school administrators, principles, higher education faculty, K-12 instructors, policymakers, and researchers interested in virtual reality incorporation in the classroom.

Medicine Meets Virtual Reality IOS Press

This practical guide provides a focus on the implementation of healthcare simulation operations, as well as the type of professional staff required for developing effective programs in this field. Though there is no single avenue in which a person pursues the career of a healthcare simulation technology specialist (HSTS), this book outlines the extensive knowledge and variety of skills one must cultivate to be effective in this role. This book begins with an introduction to healthcare simulation, including personnel, curriculum, and physical space. Subsequent chapters address eight knowledge/skill domains core to the essential aspects of an HSTS. To conclude, best practices and innovations are provided, and the benefits of developing a collaborative relationship with industry stakeholders are discussed. Expertly written text throughout the book is supplemented with dozens of high-quality color illustrations, photographs, and tables. Written and edited by leaders in the field, Comprehensive Healthcare Simulation: Operations, Technology, and Innovative Practice is optimized for a variety of learners, including healthcare educators, simulation directors, as well as those looking to pursue a career in simulation operations as healthcare simulation technology specialists.

Emerging Tools and Applications of Virtual Reality in Education IOS Press

This book provides a trove of insightful perspectives on the current state and the realization of digital surgery. Digital surgery entails the application of artificial intelligence and machine learning toward automation in robotic-assisted surgery. More generally, the objective is to digitally define the patient, the surgical field, and the surgical problem or task at hand; to operate based on information, rather than based on anatomic planes alone. But digital surgery has shapeshifted into other, equally intriguing faces – many of which are exemplified by topics throughout this book. Digital surgery is fundamental to 3D-printed organs, mind-controlled limbs, image-guided navigation, and tele-mentoring. It is the key that unlocks the metaphorical doorway to surgical access, thereby creating a global framework for surgical training, education, planning, and much more. This text provides methods of measurement and perception outside of the human umwelt – including the ability to visualize fields beyond the visible light spectrum, via near infrared fluorescent organic dyes which are rapidly being bioengineered to target specific tumors, as well as native anatomic structures of interest. Written by experts in the field, Digital Surgery is designed to help surgeons operate with an enriched understanding of an individual's specific attributes: including the human phenome, physiome, microbiome, genome, and epigenome. It also aids surgeons in harnessing the power and fluidity of the cloud, which is emerging as a significant resource for surgeons both regionally and globally.

Biomedical Visualisation Routledge

Virtual Reality in Higher Education: Instruction for the Digital Age contains eight chapters of graduate student research about how virtual reality is being used in institutions of higher education in specific areas of education, training, and athletic recruitment.

Applying the Science of Learning Rehabilitation Science in Practice Series

This is the second of two comprehensive volumes that provide a thorough and multi-faceted research into the emerging field of augmented reality games and consider a wide range of its major issues. These first ever research monographs on augmented reality games have been written by a team of 70 leading researchers, practitioners and artists from 20 countries. Volume II explores the most important and challenging issues that have been raised by the use of the Augmented Reality approach and technology in the gamification of education, healthcare, medicine and art. The volume deals with a systematic analysis of educational augmented reality games, their use for health promotion in old age and for improving people's well-being, the gamification of augmented reality art and immersive reading experiences, among other topics. Augmented Reality Games II is essential reading not only for researchers, practitioners, game developers and artists, but also for students (graduates and undergraduates) and all those interested in the rapidly developing area of augmented reality games.

Immersive Virtual and Augmented Reality in Healthcare IGI Global

The book acts as a guide, taking the reader into the smart system domain and providing theoretical and practical knowledge along with case studies in smart healthcare. The book uses a blend of interdisciplinary approaches such as IoT, blockchain, augmented reality, and virtual reality for the implementation of cost-effective, real-time, and user-friendly solutions for healthcare problems. Immersive Virtual and Augmented Reality in Healthcare: An IoT and Blockchain Perspective presents the trends, best practices, techniques, developments, sensors, materials, and case studies that are using augmented and virtual reality environments with the state-of-the-art latest technologies like IoT, blockchain, and machine learning in the implementation of healthcare systems. The book focuses on the design and implementation of smart healthcare systems with major challenges to further explore more robust and efficient healthcare solutions in terms of low cost, faster algorithms, more sensitive IoT sensors, faster data communication, and real-time solutions for treatment. It discusses the use of virtual and augmented reality and how it can provide user-friendly and interactive communication within healthcare systems. Illustrated through case studies, the book conveys how different hospitals and healthcare equipment providers can adopt good practices found in the book to improve the performance/productivity of their staff and system. The content is rounded out by providing how IoT, blockchain, and artificial intelligence can provide the framework for designing and/or upgrading traditional healthcare systems by increasing security and data privacy. A valuable resource for engineers working with systems, the healthcare professionals involved in the design and development of healthcare devices and systems, researcher scholars, multidisciplinary scientists, students, and academics who are wishing to explore the use of virtual and augmented reality in new and existing healthcare systems.

Chemotherapy and Biotherapy Guidelines and Recommendations for Practice BoD – Books on Demand

Within the last few years, devices that are increasingly capable of offering an immersive experience close to reality have emerged. As devices decrease in size, the interest and application possibilities for them increase. In the healthcare sector, there is an enormous potential for virtual reality development, as this technology allows, on the one hand, the execution of operations or processes at a distance, decoupling realities; and on the other hand, it offers the possibility of simulation for training purposes, whenever there are contexts of risk to the patient or to the health professional. However, virtual reality devices and immersion in virtual environments still requires some improvement as complaints such as headaches and nausea are still common among users, and so continuous research and development is critical to progress the technology. Emerging Advancements for Virtual and Augmented Reality in Healthcare synthesizes the trends, best practices, methodologies, languages, and tools used to implement virtual reality and create a positive user experience while also discussing how to implement virtual reality into day-to-day work with a focus on healthcare professionals and related areas. The application possibilities and their impact are transversal to all areas of health and fields such as education, training, surgery, pain management, physical rehabilitation, stroke rehabilitation, phobia therapy, and telemedicine. Covering topics such as mental health treatment and virtual simulations, it is ideal for medical professionals, engineers, computer scientists, researchers, practitioners, managers, academicians, teachers, and students.

Methodologies and Use Cases on Extended Reality for Training and Education CRC Press

Award-winning cine-maVRicks Eric R. Williams, Carrie Love and Matt Love introduce virtual reality cinema (also known as 360° video or cine-VR) in this comprehensive guide filled with insider tips and tested techniques for writing, directing and producing effectively in the new medium. Join these veteran cine-VR storytellers as they break down fundamental concepts from traditional media to demonstrate how cine-VR can connect with audiences in new ways. Examples from their professional work are provided to illustrate basic, intermediate and advanced approaches to crafting modern story in this unique narrative space where there's no screen to contain an image and no specific stage upon which to perform. Virtual Reality Cinema will prepare you to approach your own cine-VR projects via: Tips and techniques for writing, directing and producing bleeding-edge narrative cine-VR projects; More than a hundred photos and illustrations to explain complex concepts; Access to more than two hours of on-line cine-VR examples that you can download to watch on your own HMD; New techniques developed at Ohio University's Game Research and Immersive Design (GRID) Lab, including how to work with actors to embrace Gravity and avoid the Persona Gap, how to develop stories with the Story Engagement Matrix and how to balance directorial control and audience agency in this new medium. This book is an absolute must read for any student of filmmaking, media production, transmedia storytelling and game design, as well as anyone already working in these industries that wants to understand the new challenges and opportunities of virtual reality cinema.

PROFILES OF USE OF VIRTUAL REALITY IN MEDICAL EDUCATION. IGI Global

A Prototype Virtual Reality System for Preoperative Planning of Neuro-Endovascular Interventions -- Validation of Soft Tissue Properties in Surgical Simulation with Haptic Feedback -- Comparison of CAVE and HM for Visual Stimulation in Postural Control Research -- Virtual Vision Loss Simulator -- Reaction-Time Measurement and Real-Tune Data Acquisition for Neuroscientific Experiments in Virtual Environments -- A Preliminary Study of Presence inVirtual Reality Training Simulation for Medical Emergencies -- An Ali System with Intuitive User Interface for Manipulation and Visualization of 3D Medical Data -- A Haptic Surgical Simulator for the Continuous Curvilinear Capsulorhexis Procedure During Cataract Surgery -- Haptic Rendering of Tissue Cutting with Scissors -- Increasing face validity of a vascular interventional training system -- An Endoscopic Sinus Surgery Training System for Assessment of Surgical Skill -- Acquiring Laparoscopic Manipulative Skills: A Virtual Tissue Dissection Training Module -- Novel Force Resolver Designs for a Haptic Surgery Simulator -- Author Index

Virtual, Augmented Reality and Serious Games for Healthcare 1 Medical Information Science Reference

Virtual reality (VR) provides immersive stereoscopic visualization of virtual environments, and the visualization effect and computer graphics are critical to enhancing the engagement of participants and achieving optimal education and training effectiveness. Constructing realistic 3D models and scenarios for a specific application of VR simulation is no easy task. There are many different tools for 3D modeling. However, many of the modeling tools are used for manufacturing and product design applications and have advanced features and functions which may not be applicable to different levels of users and various specializations. Cases on Virtual Reality Modeling in Healthcare introduces the use of Blender for VR 3D modeling, demonstrates healthcare applications, and examines potential uses in modeling, dressing, and animation in healthcare. Covering a range of topics such as cross reality, rehabilitation games, and augmented reality, this book is ideal for engineers, industry professionals, practitioners, researchers, academicians, instructors, and students.

Virtual Reality in Health and Rehabilitation IOS Press

In the early 1990s, a small group of individuals recognized how virtual reality (VR) could transform medicine by immersing physicians, students and patients in data more completely. Technical obstacles delayed progress but VR is now enjoying a renaissance, with breakthrough applications available for healthcare. This book presents papers from the Medicine Meets Virtual Reality 22 conference, held in Los Angeles, California, USA, in April 2016. Engineers, physicians, scientists, educators, students, industry, military, and futurists participated in its creative mix of unorthodox thinking and validated investigation. The topics covered include medical simulation and modeling, imaging and visualization, robotics, haptics, sensors, physical and mental rehabilitation tools, and more. Providing an overview of the state-of-the-art, this book will interest all those involved in medical VR and in innovative healthcare, generally.

Medical and Surgical Education Springer Nature

Order your copy of the fourth edition of the best-selling resource used by more than 101,000 healthcare professionals since 2009 and keep up-to-date on the latest chemotherapy, biotherapy, and targeted agents. This new edition of the Chemotherapy and Biotherapy Guidelines and Recommendations for Practice has been revised and updated to reflect the current procedures and practices in your specialty. You'll find that this latest edition incorporates a number of significant changes. To help you find the content and information that you need quickly and easily, the text has been reorganized and is now divided into 11 chapters ranging from an overview of cancer and cancer treatment and principles of antineoplastic therapy to post-treatment care and competencies in chemotherapy administration. Patient education information has also been expanded in the new edition to emphasize importance of education in patient care. And, finally, look for new information on chemotherapy sequencing and updates on the nursing management of treatment side effects.As with previous editions, the guidelines strives to bring you the latest details on approved drugs, standards of practice, and available evidence. Make sure to update your library with this latest edition of one of the most trusted and widely used resources for practicing oncology nurses.

Mixed and Augmented Reality in Medicine Springer

Extended Reality for Healthcare Systems: Recent Advances in Contemporary Research focuses on real world applications in medicine, also providing an overview of emerging technologies. The book includes case studies that break down the ways in which this technology has and can be used, while also taking readers through evidence, best practices and obstacles. Sections emphasize evidence, research-based practices and work. Content coverage includes Enhancing Medical Education with AR/VR, and XR: The Future of Surgery and Building Systems for Enhanced Health, and more. Readers will learn how to use this technology to improve existing systems by enhancing precision and reducing costs. Other sections cover extended reality in elderly care and remote monitoring of patients, building systems for enhanced health, including telehealth and telepsychiatry, using AR and VR in medical education, and designing technology for use in telesurgery. Offers advice on the development of state-of-the-art tech-driven healthcare systems and technologies for improving the quality of healthcare Focuses on healthcare solutions that are inclusive and cost-effective Discusses the future, limitations and challenges associated with the use and adoption of XR for healthcare

Medicine Meets Virtual Reality 20 Springer Nature

This text explores the scientific relationship between learning, instruction, and assessment with a concise and bold approach. This text explores the science of learning, including the essentials of

evaluating instruction, the research findings regarding the science of learning, and the possible prescriptions of that research. Written for both preservice and inservice educators who wish to better understand how and why students learn.

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