Robot Assisted Endoscopic Surgery Researchgate | f28dd29e862925eb533f157a96a7a141

Medical Robotics
Neuroendoscopic Surgery
Minimally Invasive Thyroidectomy
Tactile Sensing and Displays
Transoral Robotic Surgery (TORS)
The Role of Laparoscopy in Emergency Abdominal Surgery
Herbal Medicine in India
Robotics in Plastic and Reconstructive Surgery
Radical Prostatectomy
Surgical Techniques in Rectal Cancer
Robotics in General Surgery
Price Setting and Price Regulation in Health Care
Computational Intelligence Techniques for Combating COVID-19
The SAGES Manual of Colorectal Surgery
Liver Disease and Surgery
Robotic Surgery, An Issue of Surgical Clinics
Principles and Practice of Lacrimal Surgery
Industry 4.0: Managing The Digital Transformation
Handbook of Robot and Image-Guided Surgery
Surgical Robotics
The Digitization of Healthcare
Soft Computing Applications
Computer-integrated Surgery
Health Status and Medical Treatment of the Future Elderly
Urologic Robotic Surgery in Clinical Practice
Image Fusion
Coproctology
Advances in Human Factors and Ergonomics in Healthcare
Artificial Intelligence in Surgery: Understanding the Role of AI in Surgical Practice
The SAGES Atlas of Robotic Surgery
Clinical Pathways in Stroke Rehabilitation
Neurosurgical Robotics
The Malaysia-Japan Model on Technology Partnership
Advanced Gynecologic Endoscopy
New Trends in Craniovertebral Junction Surgery
Robotic-Assisted Minimally Invasive Surgery
Advances in Service and Industrial Robotics
Anesthesia for Urologic Surgery
Recent Advances in Laparoscopic Surgery
Therapeutic Endoscopic Ultrasound
Build a solid foundation in surgical AI with this engaging, comprehensive guide for AI novices.
Machine learning, neural networks, and computer vision in surgical education, practice, and research will soon be de rigueur. Written for surgeons without a background in math or computer science, Artificial Intelligence in Surgery provides everything you need to evaluate new technologies and make the right decisions about bringing AI into your practice. Comprehensive and easy to understand, this first-of-its-kind resource illustrates the use of AI in surgery through real-life examples. It covers the issues most relevant to your practice, including:
- Neural Networks and Deep Learning
- Natural Language Processing
- Computer Vision
- Surgical Education
- Practice
- Artificial Intelligence Research
- Global Contributions to Neuroendoscopy
- Ethical Implications of Artificial Intelligence in Surgery
- Artificial Intelligence and Health Policy
- Assessing Strengths and Weaknesses of Artificial Intelligence Research
Finally, the appendix includes a detailed glossary of terms and important learning resources and techniques—all of which helps you interpret claims made by studies or companies using AI.

The development and refinement of neuroendoscopy has been driven by the persistent desire of neurosurgeons to advance the field and offer less invasive, more efficacious options to patients. This remarkable multimedia book reflects the technological advances achieved in the last two decades in fiber optics, cold light, cameras, and endoscopic instrumentation. Written by an impressive Who's Who of international neurosurgeons, the outstanding text and videos reflect global contributions to neuroendoscopy.

Current indications for intracranial and intraventricular endoscopy are described in depth, through detailed chapters, stellar videos, professional animations, and exquisite illustrations. The authors share their clinical expertise on procedures ranging from endoscopic third ventriculostomy to transventricular approach of the fourth ventricle. Cover to cover, this book details the differences, alternatives, advantages, and limitations of the flexible neuroendoscope.

This hands-on learning tool will enable neurosurgeons to perform endoscopy of the ventricles and basal cisterns for exploratory purposes and conditions such as hydrocephalus, congenital aqueductal stenosis, tumors, hypothalamic hamartoma, arachnoid cysts, and neurocysticercosis.

Additional topics include endoscopic-assisted microvascular decompression and aneurysm surgery, fluorescence, complications, anesthesia, utilization in developing countries, and future trends. Key Features: Comprehensive multimedia reference with online access to 70 superb videos and animations. More than 300 meticulously drawn illustrations. Beautifully illustrated anatomical chapters that facilitate in-depth understanding of endoscopic anatomy. An entire chapter devoted to flexible neuroendoscopy. Indications, preoperative preparation, procedure description, intraoperative complications and their management (“risk and rescue” techniques), expert pearls, postoperative management, and outcomes. This volume is a must-have resource for neurosurgeons, pediatric neurosurgeons, and all physicians involved in the care of patients with intracranial and intraventricular disease. This book provides essential didactic content for the SAGES University Masters Program Colorectal Surgery Curriculum.

Surgeons seeking to complete the competency, proficiency, or mastery curriculum of the MASTERS Colorectal Pathway for a particular anchoring colorectal procedure will find relevant educational content in this SAGES Manual. Written by experts in the field, each chapter provides detailed guidance on preoperative and peri-procedural considerations for right and left elective and emergency colorectal resections, for both benign and malignant pathologies. Technical pearls and strategies to manage pitfalls and complications are also extensively reviewed along with detailed guidance for both laparoscopic and robotic procedures. The SAGES Manual of Colorectal Surgery.
Surgery provides a wealth of practical guidance to surgeons along their journey to progress from competency to mastery in various minimally invasive approaches to colorectal surgery. This volume introduces engineers and healthcare professionals to the latest in neurosurgical robotic technology. The chapters in this book are organized into two parts and cover basic engineering concepts that underpin surgical robotics; various robotic platforms and how these systems make their way to the clinic; popular applications of surgical robots in neurosurgery within subspecialties; and a discussion on the future development of neurosurgical robotic systems. In the Neuromethods series style, chapters include the kind of detail and key advice from the specialists needed to get successful results in your clinic. Cutting-edge and thorough, Neurosurgical Robotics is a valuable resource for scientists and engineers interested in learning more about this fascinating and developing field. This book provides a comprehensive guide to Industry 4.0 applications, not only introducing implementation aspects but also proposing a conceptual framework with respect to the design principles. In addition, it discusses the effects of Industry 4.0, which are reflected in new business models and workforce transformation. The book then examines the key technological advances that form the pillars of Industry 4.0 and explores their potential technical and economic benefits using examples of real-world applications. The changing dynamics of global production, such as more complex and automated processes, high-level competitiveness and emerging technologies, have paved the way for a new generation of goods, products and services. Moreover, manufacturers are increasingly realizing the value of the data that their processes and products generate. Such trends are transforming manufacturing industry to the next generation, namely Industry 4.0, which is based on the integration of information and communication technologies and industrial technology. The book provides a conceptual framework and roadmap for decision-makers for this transformation. Radical prostatectomy involves the surgical removal of the entire prostate gland and the seminal vesicles. Recently, the open operation has been challenged by laparoscopic and robotic techniques. However, making the transition to this new technology is not an easy option. Avoiding surgical complications such as incontinence and ensuring continued erThe main purpose of this book is to address some important issues related to gynecologic laparoscopy. Since the early breakthroughs by its pioneers, laparoscopic gynecologic surgery has gained popularity due to developments in illumination and instrumentation that led to the emergence of laparoscopy in the late 1980's as a credible diagnostic as well as therapeutic intervention. This book is unique in that it will review common, useful information about certain laparoscopic procedures, including technique and instruments, and then discuss common difficulties faced during each operation. We also discuss the uncommon and occasionally even anecdotal cases and the safest ways to deal with them. We are honored to have had a group of world experts in laparoscopic gynecologic surgery valuably contribute to our book. Handbook of Robotic and Image-Guided Surgery provides state-of-the-art systems and methods for robotic and computer-assisted surgeries. In this masterpiece, contributions of 169 researchers from 19 countries have been gathered to provide 38 chapters. This handbook is 744 pages, includes 659 figures and 61 videos. It also provides basic medical knowledge for engineers and basic engineering principles for surgeons. A key strength of this text is the fusion of engineering, radiology, and surgical principles into one book. A thorough and in-depth handbook on surgical robotics and image-guided surgery which includes both fundamentals and advances in the field A comprehensive reference on robot-assisted laparoscopic, orthopaedic, and head-and-neck surgeries Chapters are contributed by worldwide experts from both engineering and surgical backgrounds. Minimally invasive surgery has impacted the outcomes of surgery more than any technology since the development of sterile technique. The hard science has demonstrated that decrease in wound complications and recovery time has created the biggest gap with open approaches to surgery. The total economic benefit may be unfathomable when looked at comprehensively. Integral to the rise of minimal access and therapeutic techniques in surgery has been the growth of technological improvements over time. Beginning with insufflators, videoscopy, and energy devices, that evolution has continued into the development of tele-surgical devices that feature full articulation of instruments, high-resolution 3-D optics, and computer assisted movement. This has come with controversy - as the dominant manufacturer of robotic assisted devices, Intuitive Surgical, and their generations of da Vinci surgical platforms, holds enough market share to spur cries of monopoly and financial excess. However, with over 3000 world-wide systems in use, and over 6000 peer-reviewed research articles, the impact of robotic surgery cannot be ignored. The current state of data suggests equivalency in most procedures with regard to traditional outcome measures, equal or somewhat elevated costs, with specific areas of superiority. The first section of this textbook, Surgical Robots, covers the history, economics, training, and medico-legal aspects of robotic surgery that will be of interest to students, residents, fellows, surgical staff, and administrators or public health specialists who seek to gain a comprehensive background on robotic surgery, or justification for purchasing a robotic system for their institution. Surgeons will also find this background valuable to their practice, to give context to their procedures so they can better counsel their patients, help with advocating for robotic platform purchases, and proactively prepare themselves for medico-legal issues. The chapter on legal issues will have specific instances of robotic surgery-related lawsuits and their outcomes, a first for robotic surgery texts.
The second section of this textbook, Robotic Procedures, will contain a comprehensive catalogue of procedures that have been performed robotically in general surgery, gynecology, urology, plastic surgery, cardiothoracic, and otolaryngology. Each author will cover the existing literature, preoperative planning, room and patient setup, steps of the procedure, and postoperative care. Standardized room maps and port placement will help the student, resident, fellow, surgeon or OR Staff to quickly reference these before cases. Each chapter will also cover the specific equipment needs and expected complexity of the procedures, allowing administrators to better gauge how to prepare for, or ration, use or their robotic resources. The final section, Future of Robotics, will give the entire scope of audience a look into what exciting advancements in the field are on the horizon. This textbook is a complete resource for robotic-assisted minimally invasive surgery, covering the history, current state, technical and clinical aspects, and future considerations that may be of interest to any who has a role, stake, or curiosity regarding robotic surgery. Combining conceptual, pragmatic and operational approaches, this edited collection addresses the demand for knowledge and understanding of IT in the healthcare sector. With new technology outbreaks, our vision of healthcare has been drastically changed, switching from a ‘traditional’ path to a digitalized one. Providing an overview of the role of IT in the healthcare sector, The Digitization of Healthcare illustrates the potential benefits and challenges for all those involved in delivering care to the patient. The incursion of IT has disrupted the value chain and changed business models for companies working in the health sector, and also raised ethical issues and new paradigms about delivering care. This book illustrates the rise of patient empowerment through the development of patient communities such as PatientLikeMe, and medical collaborate platforms such as DockCheck, thus providing a necessary tool to patients, caregivers and academics alike. EMM: Coloproctology presents the state-of-the-art in coloproctology. The topics covered include anatomy, physiology, anal disorders, dermatology, functional disorders, inflammatory bowel disease, benign and malignant tumors, endoscopy, emergencies and pain syndromes. All chapters give a comprehensive overview of aetiology, incidence, epidemiology, diagnostics, medical and surgical treatment, complications and individual special considerations. This work presents surgical trainees with a comprehensive and condensed guide to the core knowledge required for the European Board of Surgery Qualification (EBSQ) examination. The manual will also be of assistance to practising coloproctologists across Europe and beyond who have an interest in continued professional development. Written by an international team of experts who have each made noteworthy contributions in their field, the coverage of most aspects of coloproctology in an easy-to-follow format also makes this manual valuable to other specialists. This book provides an up-to-date review of therapeutic EUS with an equal focus on technical descriptions with ample endoscopic images/video clips by world experts and the scientific evidence behind the described techniques. The book provides an overview of the field in a structured manner, starting with general topics on equipment and service development and extending to the fields of EUS-guided drainage, anti-tumor therapies, and other specific EUS-guided interventional treatments. Therapeutic Endoscopic Ultrasound is a key resource for endoscopists, gastroenterologists, surgeons, and GI oncologists. This book is intended as a definitive, state of the art guide to robotic surgery that summarizes the field for surgeons at all levels. More specifically, its goals are threefold: to review the basics of robotic surgery, including fundamental principles, technology, operating room setup, and workflow; to describe and illustrate the procedures most commonly performed in a robotic operating room; and to discuss key issues relating to cost, adoption, and training. Procedures from many surgical disciplines are included, which will aid robotic surgeons in supervising and assisting colleagues in these disciplines and simultaneously heighten their awareness of the tricks and tools used in other disciplines that can be retasked for their own purposes. In addition, the future prospects for robotic surgery, including anticipated developments in equipment, are discussed. The Textbook and Atlas of Robotic Surgery will be an excellent aid for residents and fellows entering the field, as well as a welcome update on recent progress for practicing robotic surgeons and an ideal primer for senior surgeons adapting these new technologies to their current practice. This is a concise, up-to-date reference on anesthesia for urological surgery. Urological anesthesia is not recognized as a specialty, and a majority of anesthesiologists and nurse anesthetists will provide anesthesia for these patients. Advances in urological procedures, the advent of treatment of patients with strong anticoagulant and antiplatelet medications, and the demographics of urology patients (many of whom are young or elderly) present challenges for the anesthesiologist and have necessitated changes in anesthesia practice. The last volume on this topic was published in 2000, and the time is right for a fresh presentation of contemporary expertise in anesthesia for urological surgery. The book provides a brief review of renal physiology and pharmacology then addresses anesthesia for each major group of urological procedures (e.g., endoscopic, office-based, laparoscopic and robotic, nephrolithotripsy, renal transplantation, etc.) and in special populations, including the geriatric patient, the pediatric patient, and the pregnant patient. Separate chapters discuss the unique challenges of positioning the patient, and of managing the patient taking anticoagulant and antiplatelet medication, and the chapter on pain management addresses common and important perioperative concerns. The book provides a brief review of renal physiology and pharmacology then addresses anesthesia for each major group of urological...
procedures (e.g., endoscopic, office-based, laparoscopic and robotic, nephrolithotripsy, renal transplantation, etc.) and in special populations, including the geriatric patient, the pediatric patient, and the pregnant patient. Separate chapters discuss the unique challenges of positioning the patient, and of managing the patient taking anticoagulant and antiplatelet medication, and the chapter on pain management addresses common and important perioperative concerns. This volume contains the proceedings of the 26th International Conference on Robotics in Alpe-Adria-Danube Region, RAAD 2017, held at the Polytechnic University of Turin, Italy, from June 21-23, 2017. The conference brought together academic and industrial researchers in robotics from 30 countries, the majority of them affiliated to the Alpe-Adria-Danube Region, and their worldwide partners. RAAD 2017 covered all major areas of R&D and innovation in robotics, including the latest research trends. The book provides an overview on the advances in service and industrial robotics. The topics are presented in a sequence starting from the classical robotic subjects, such as kinematics, dynamics, structures, control, and ending with the newest topics, like human-robot interaction and biomedical applications. Researchers involved in the robotic field will find this an extraordinary and up-to-date perspective on the state of the art in this area. This book highlights the medical importance of and increasing global interest in herbal medicines, herbal health products, herbal pharmaceuticals, nutraceuticals, food supplements, herbal cosmetics, etc. It also addresses various issues that are hampering the advancement of Indian herbal medicine around the globe; these include quality concerns and quality control, pharmacovigilance, scientific investigation and validation, IPR and biopiracy, and the challenge that various indigenous systems of medicine are at risk of being lost. The book also explores the role of traditional medicine in providing new functional leads and modern approaches that can offer elegant strategies for facilitating the drug discovery process. The book also provides in-depth information on various traditional medicinal systems in India and discusses their medical importance. India has a very long history of safely using many herbal drugs. Folk medicine is also a key source of medical knowledge and plays a vital role in maintaining health in rural and remote areas. Despite its importance, this form of medicine largely remains under-investigated. Out of all the traditional medicinal systems used worldwide, Indian traditional medicine holds a unique position, as it has continued to deliver healthcare throughout the Asian subcontinent since ancient times. In addition, traditional medicine has been used to derive advanced techniques and investigate many modern drugs. Given the scope of its coverage, the book offers a valuable resource for scientists and researchers exploring traditional and herbal medicine, as well as graduate students in courses on traditional medicine, herbal medicine and pharmacy. This book describes the current state of robotics in plastic and reconstructive surgery. It examines existing clinical applications, emerging and future applications and evolving technological platforms. Concise yet comprehensive, this book is organized into four sections. It begins with an introduction to robotic microsurgical training and robotic skills assessment, including crowd-sourced evaluation in surgery. Section two explores a variety of robotic clinical application, including robotic breast reconstruction, robotic mastectomy, robotic cleft palate surgery and robotic microsurgery in a urologic private practice. Following this, section three addresses the opportunities and challenges an interested surgeon might face when considering incorporating this technology into their practice. To close, the final section discusses new microsurgical robotic platforms and the potential directions this technology may take in the future. Supplemented with high quality videos and images, Robotics in Plastic and Reconstructive Surgery is an invaluable resource for both plastic surgeons and multi-specialty micro-surgeons. Comprehensive covers the key technologies for the development of tactile perception in minimally invasive surgery. Covering the timely topic of tactile sensing and display in minimally invasive and robotic surgery, this book comprehensively explores new techniques which could dramatically reduce the need for invasive procedures. The tools currently used in minimally invasive surgery (MIS) lack any sort of tactile sensing, significantly reducing the performance of these types of procedures. This book systematically explains the various technologies which the most prominent researchers have proposed to overcome the problem. Furthermore, the authors put forward their own findings, which have been published in recent patents and patent applications. These solutions offer original and creative means of surmounting the current drawbacks of MIS and robotic surgery. Key features:- Comprehensive covers topics of this ground-breaking technology including tactile sensing, force sensing, tactile display, PVDF fundamentals Describes the mechanisms, methods and sensors that measure and display kinaesthetic and tactile data between a surgical tool and tissue Written by authors at the cutting-edge of research into the area of tactile perception in minimally invasive surgery Provides key topic for academic researchers, graduate students as well as professionals working in the area The goal of this book is to present a review of the different categories of liver disease, as well as address the role of surgery in managing these complex diseases. The book includes chapters written by international experts on the most current indications and guidelines regarding the diagnoses and management of liver diseases, as well as a variety of technical elements involved with the surgical procedures. Different surgical techniques involved in performing a hepatectomy will be discussed, including various instruments used, as well as the effect of modern technology as evidenced by novel procedures. An important focus of the book has been identifying the proper place of all these hepatectomy methods in the
armamentarium of the experienced hepatobiliary surgeon, including the role of locoregional treatments such as ablation and embolization as adjuncts. Finally, the role of hepatectomy compared to orthotopic liver transplantation is discussed, so that the reader can have a well-rounded picture of the challenges and opportunities involved. Overall, this book has the potential to serve as an invaluable "tool" for both the hepatologist and the internist, as well as for the hepatic surgeon.

Robotics in General Surgery provides a comprehensive review of the current applications of the robotic platform in all the general surgery subspecialties. Additionally, for each subspecialty it serves as a procedure-oriented instruction manual in terms of technical details of procedures, including fundamentals of robot positioning and trocar placement, step-by-step description of procedures, comprehensive discussions of advantages, limitations, indications, and relative contraindications of using the robotic approach. The text also discusses the challenges and steps to overcoming these challenges in transitioning from a minimally invasive to a robotic practice/surgeon. Lastly, this volume addresses emerging technology in robotics and the impact that the robotics platform will have on not only practice of surgery, but also in the education of surgeons at all levels. Written by experts in the field of robotic surgery, Robotics in General Surgery is a valuable resource for general surgeons of all levels including residents, fellows and surgeons already in practice. This report describes the Future Elderly Model, a demographic-economic model of health spending projections developed by RAND Health to help the Centers for Medicare and Medicaid Services more accurately predict future health care cost. This second edition of the highly successful and comprehensive text on lacrimal disorders presents the latest developments in this rapidly evolving field. The new edition includes six new chapters, additional photographs and all chapters now have a separate section on recent advances. Written by experts in the field of dacryology, this book is a practical guide to evaluating and managing patients with lacrimal disorders. It methodically discusses basic anatomy and underlying pathology, patient evaluation, and all surgical procedures currently used to manage such disorders. It thoroughly yet concisely reviews surgical modalities including the endoscopic and micro-endoscopic approaches and provides ample illustrations for a better understanding. Since familiarity with a surgical technique is incomplete without the knowledge of risk factors and red flags, the text highlights ways of dealing with surgical complications and failure. Further it discusses in detail controversial topics and treatment dilemmas and reviews the current consensus among the experts. This is an up-to-date reference work for dacryologists, oculoplastic surgeons, general ophthalmologists as well as fellows in training. The implementation of laparoscopy has revolutionized surgery over the past few years, incorporating significant benefits for the patient. However, this evolution has also entailed many technical obstacles for surgeons. This book is for readers wanting to learn more about recent surgical techniques and technologies. Topics cover novel sophisticated approaches for single-site surgery, natural orifice transluminal endoscopic surgery, and transanal surgery, among others. Also included are reviews of new innovative surgical devices, robotic platforms, and methodological guidelines for improving surgical performance and surgeon ergonomics. This book presents the latest cutting edge research, theoretical methods, and novel applications in the field of computational intelligence and computational biological approaches that are aiming to combat COVID-19. The book gives the technological key drivers behind using AI to find drugs that target the virus, shedding light on the structure of COVID-19, detecting the outbreak and spread of new diseases, spotting signs of a COVID-19 infection in medical images, monitoring how the virus and lockdown is affecting mental health, and forecasting how COVID-19 cases and deaths will spread across cities and why. Further, the book helps readers understand computational intelligence techniques combating COVID-19 in a simple and systematic way. Provides a comprehensive reference covering innovations and development of theories, conceptual models and computational algorithms focused on COVID-19; Asserts all relevant research, key themes, complex adaptive systems, metrics and paradigms dedicated towards COVID-19, enabled with evolutionary methods of computational sciences; Explores how AI and computational techniques can help to predict which patients with the virus would go on to develop Acute Respiratory Distress Syndrome (ARDS). This book describes in detail the various techniques of minimally invasive thyroidectomy that have emerged in recent years and presents the new supportive equipment, including intraoperative monitoring and energy devices. In addition, the basic preoperative techniques that are a prerequisite to successful thyroidectomy are covered, and individual chapters are devoted to complications, outcomes, and post-thyroidectomy quality of life. Important related topics are also discussed, including guidelines for managing papillary and medullary thyroid cancer and the surgical management of metastatic lymph nodes. Both the editors and the authors are internationally renowned experts, and they include the founders of several of the techniques described. The up-to-date text is supplemented by many color pictures and medical illustrations, making the book very user-friendly and ideal for the busy surgeon or endocrinologist who is interested in the management of thyroid diseases. Robotics is one of the hottest topics in medicine today, with an international interest that is exponentially growing. The introduction of robotic technology into modern operating theatres has provoked a revolutionary change in the basic surgical approach, with many advantages over traditional open surgical treatment, including faster recovery and a significantly lower risk of surgical trauma. While the benefits of minimally invasive surgery are apparent, the expansion of laparoscopic surgery
throughout the field has been relatively slow due to the steep learning curve and the level of practice and specialization required to perform such procedures. Although revolutionary upon conception, standard laparoscopy involves the surgeon working from monitors with no depth perception and also with a surgical motion that is counter-intuitive. The introduction of robotic technology however, has surpassed the traditional laparoscopic approach by providing full three dimensional vision, intuitive motion and wristed instrumentation with motion scaling. These dramatic innovations have broadened the scope of surgeons that can now perform complex laparoscopy, and while still in its infancy, robotic assisted surgery has begun to infiltrate all fields of surgery. However, while the practical adoption of the techniques and procedures has increased over the last 5 years, the educational resources have not, leaving the only available learning tools as videos, case observation and proctorships. There is therefore a severe market void for such a publication as this, with steadily growing sales around the world of robotic surgical systems. A compact book, overseen by such a respected figure and featuring contributions from the field leaders, is sure to be very successful within the next few years.Advances in research have led to the use of robotics in a range of surgical applications. Medical robotics: Minimally invasive surgery provides authoritative coverage of the core principles, applications and future potential of this enabling technology. Beginning with an introduction to robot-assisted minimally invasive surgery (MIS), the core technologies of the field are discussed, including localization and tracking technologies for medical robotics. Key applications of robotics in laparoscopy, neurology, cardiovascular interventions, urology and orthopaedics are considered, as well as applications for ear, nose and throat (ENT) surgery, vitreoretinal surgery and natural orifice transluminal endoscopic surgery (NOTES). Microscale mobile robots for the circulatory system and mesoscale robots for the gastrointestinal tract are investigated, as is MRI-based navigation for in vivo magnetic microrobots. Finally, the book concludes with a discussion of ethical issues related to the use of robotics in surgery. With its distinguished editor and international team of expert contributors, Medical robotics: Minimally invasive surgery is a comprehensive guide for all those working in the research, design, development and application of medical robotics for surgery. It also provides an authoritative introduction for academics and medical practitioners working in this field. Provides authoritative coverage of the core principles, applications and future potential of medical robotics introduces robot-assisted minimally invasive surgery (MIS), including the core technologies of the field and localization and tracking technologies for medical robotics Considers key applications of robotics in laparoscopy, neurology, cardiovascular interventions, urology and orthopaedicsSurgical robotics is a rapidly evolving field. With roots in academic research, surgical robotic systems are now clinically used across a wide spectrum of surgical procedures. Surgical Robotics: Systems Applications and Visions provides a comprehensive view of the field both from the research and clinical perspectives. This volume takes a look at surgical robotics from four different perspectives, addressing vision, systems, engineering development and clinical applications of these technologies. The book also: -Discusses specific surgical applications of robotics that have already been deployed in operating rooms -Covers specific engineering breakthroughs that have occurred in surgical robotics -Details surgical robotic applications in specific disciplines of surgery including orthopedics, urology, cardiac surgery, neurosurgery, ophthalmology, pediatric surgery and general surgery Surgical Robotics: Systems Applications and Visions is an ideal volume for researchers and engineers working in biomedical engineering. This book presents the proceedings of the 8th International Workshop on Soft Computing Applications, SOFA 2018, held on 13–15 September 2018 in Arad, Romania. The workshop was organized by Aurel Vlaicu University of Arad, in conjunction with the Institute of Computer Science, Iasi Branch of the Romanian Academy, IEEE Romanian Section, Romanian Society of Control Engineering and Technical Informatics - Arad Section, General Association of Engineers in Romania – Arad Section and BTM Resources Arad. The papers included in these proceedings, published post-conference, cover the research including Knowledge-Based Technologies for Web Applications, Cloud Computing, Security Algorithms and Computer Networks, Business Process Management, Computational Intelligence in Education and Modelling and Applications in Textiles and many other areas related to the Soft Computing. The book is directed to professors, researchers, and graduate students in area of soft computing techniques and applications. The selected papers included in this proceedings on Malaysia-Japan Academic Scholar Conference (MJASC) 2013, are related to nano-science engineering, mechanical engineering, electrical and electronic engineering, computer science, information technology etc. This proceedings will be a source of research findings for Malaysia and Japan specifically, and other countries in general, especially among researchers, industry sectors and government policy makers. It will be served as a resourceful reference and platform to reflect the significant of the Look East Policy outcomes and products. This book discusses the latest advances in human factors and ergonomics, focusing on methods for improving quality, safety, efficiency, and effectiveness in patient care. By emphasizing the physical, cognitive and organizational aspects of human factors and ergonomics applications, it reports on various perspectives, including those of clinicians, patients, health organizations and insurance providers. The book describes cutting-edge applications, highlighting the best practices of staff interactions with patients, as well as interactions with computers and medical devices. It also presents new findings related to
improved organizational outcomes in healthcare settings, and approaches to modeling and analysis specifically targeting those work aspects unique to healthcare. Based on the AHFE 2016 International Conference on Human Factors and Ergonomics in Healthcare, held on July 27-31, 2016, in Walt Disney World®, Florida, USA, the book is intended as timely reference guide for both researchers involved in the design of healthcare systems and devices and healthcare professionals aiming at effective and safe health service delivery. Moreover, by providing a useful survey of cutting-edge methods for improving organizational outcomes in healthcare settings, the book also represents an inspiring reading for healthcare counselors and international health organizations. The objectives of this study are to describe experiences in price setting and how pricing has been used to attain better coverage, quality, financial protection, and health outcomes. It builds on newly commissioned case studies and lessons learned in calculating prices, negotiating with providers, and monitoring changes. Recognising that no single model is applicable to all settings, the study aimed to generate best practices and identify areas for future research, particularly in low- and middle-income settings. The report and the case studies were jointly developed by the OECD and the WHO Centre for Health Development in Kobe (Japan). This issue of Acta Neurochirurgica presents the latest surgical and experimental approaches to the craniovertebral junction (CVJ). It discusses anterior midline (transoral transnasal), posterior (CVJ), cranial laminectomy, laminotomy, instrumentation and fusion), posterolateral (far lateral) and anterolateral (extreme lateral) approaches using state-of-the-art supporting tools. It especially highlights open surgery, microsurgical techniques, neuro-navigation, the O-arm system, intraoperative MR, neuromonitoring and endoscopy. Endoscopy represents a useful complement to the standard microsurgical approach to the anterior CVJ: it can be used transnasally, transorally and transcervically; and it provides information for better decompression without the need for soft palate splitting, hard palate resection, or extended maxillotomy. While neuronavigation allows improved orientation in the surgical field, intraoperative fluoroscopy helps to recognize residual compression. Under normal anatomic conditions, there are virtually no surgical limitations to endoscopically assisted CVJ and this issue provides valuable information for the new generation of surgeons involved in this complex and challenging field of neurosurgery. This book describes the various procedures, including surgery through the abdominal wall, through a transanal access or by the union of both, using an open, laparoscopic, or robotic approach. Worldwide pioneers for each technique are invited as authors and portray in step-by-step detail about each procedure. Of the 32 chapters, 23 are dedicated only for the surgical procedures. Each chapter is enriched by numerous figures, which complement the text, permitting the understanding of each surgical technique from its beginning until the last step. Eight additional chapters are dedicated to the clinical and anatomical aspects of rectal cancer. In the last decade there has been an impressive evolution in the treatment of patients with rectal cancer, with a focus not only on the preservation of a cancer-free life, but the quality of that life. This book has been written to be useful for everyone involved in rectal cancer management. From internists, gastroenterologists, endoscopists, oncologists, radiotherapists and radiologists involved in the treatment of rectal cancer during their daily practice, to surgeons specialized in colorectal surgery, to junior faculty to trainees, all interested in new and innovative techniques. This issue of Surgical Clinics of North America focuses on Robotic Surgery, and is edited by Dr. Julio Teixeira. Articles will include: History of Computer-assisted Surgery; Robotic Cardiac Surgery; Robotic Thoracic Surgery; Robotic Foregut Surgery; Robotic Liver Resection; Robotic Cholecystectomy; Robotic Pancreatic and Solid Surgery; Robotic Colorectal Surgery; Robotic Urology Surgery; Robotic Vental Hernia Surgery; Robotic Inguinal Hernia Surgery; Robotic Bariatric Surgery; Robotic Pediatric Surgery; Robotic Gynecological Surgery; Complications of Robotic Surgery; and more! This is the first time a book about laparoscopy in emergency abdominal surgery has been published. Numerous articles have been published in specific surgical journals, but, until now, there has not been a book that collates all the aspects of this little-known field. The aim of this volume is to achieve a complete and easy presentation of all the implications associated with laparoscopy in emergency abdominal surgery. The book should be a manual that can be easily consulted by digestive, general, and specialized surgeons, especially in an emergency. The authors’ contributions are founded on evidence-based medicine, which give the book scientific credibility, but this is coupled with their experience of daily practice, which adds an important complementary dimension to evidence-based medicine. This is balanced by an emphasis on clarity and accessibility, because the ultimate aim of the book is educational. We hope this book will be frequently consulted, in depth, not only by specialist practitioners, but also by undergraduate students, new graduates and surgeons in training. In Computer-Integrated Surgery leading researchers and clinical practitioners describe the exciting new partnership that is being forged between surgeons and machines such as computers and robots, enabling them to perform certain skilled tasks better than either can do alone. The 19 chapters in part I, Technology, explore the components -- registration, basic tools for surgical planning, human-machine interfaces, robotic manipulators, safety -- that are the basis of computer-integrated surgery. These chapters provide essential background material needed to get up to speed on current work as well as a ready reference for those who are already active in the field. The 39 chapters in part II, Applications, cover eight clinical areas -- neurosurgery, orthopedics, eye
surgery, dentistry, minimal access surgery, ENT surgery, craniofacial surgery, and radiotherapy -- with a concluding chapter on the high-tech operating room. Each section contains a brief introduction as well as at least one "requirements and opportunities" chapter written by a leading clinician in the area under discussion. This open access book focuses on practical clinical problems that are frequently encountered in stroke rehabilitation. Consequences of diseases, e.g. impairments and activity limitations, are addressed in rehabilitation with the overall goal to reduce disability and promote participation. Based on the available best external evidence, clinical pathways are described for stroke rehabilitation bridging the gap between clinical evidence and clinical decision-making. The clinical pathways answer the questions which rehabilitation treatment options are beneficial to overcome specific impairment constellations and activity limitations and are well acceptable to stroke survivors, as well as when and in which settings to provide rehabilitation over the course of recovery post stroke. Each chapter starts with a description of the clinical problem encountered. This is followed by a systematic, but concise review of the evidence (RCTs, systematic reviews and meta-analyses) that is relevant for clinical decision-making, and comments on assessment, therapy (training, technology, medication), and the use of technical aids as appropriate. Based on these summaries, clinical algorithms / pathways are provided and the main clinical-decision situations are portrayed. The book is invaluable for all neurorehabilitation team members, clinicians, nurses, and therapists in neurology, physical medicine and rehabilitation, and related fields. It is a World Federation for NeuroRehabilitation (WFNR) educational initiative, bridging the gap between the rapidly expanding clinical research in stroke rehabilitation and clinical practice across societies and continents. It can be used for both clinical decision-making for individuals and as well as clinical background knowledge for stroke rehabilitation service development initiatives. Image fusion technology has successfully contributed to various fields such as medical diagnosis and navigation, surveillance systems, remote sensing, digital cameras, military applications, computer vision, etc. Image fusion aims to generate a fused single image which contains more precise reliable visualization of the objects than any source image of them. This book presents various recent advances in research and development in the field of image fusion. It has been created through the diligence and creativity of some of the most accomplished experts in various fields.