Computer-Integrated Surgery: Technology and Clinical Applications

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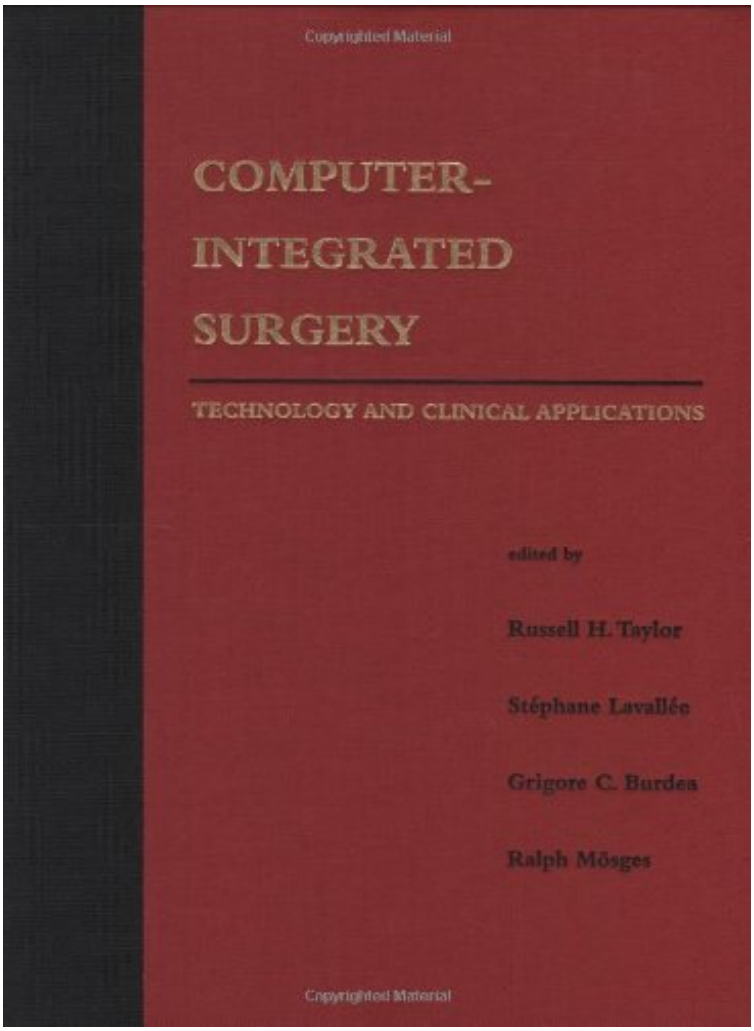

#2939013 in Books MIT Press 1995-09-15Ingredients: Example IngredientsOriginal language:EnglishPDF # 1 11.20 x 1.60 x 8.90l, 4.56 #File Name: 026220097X756 pages | File size: 25.Mb

From Brand: MIT Press : Computer-Integrated Surgery: Technology and Clinical Applications before purchasing it in order to gage whether or not it would be worth my time, and all praised Computer-Integrated Surgery: Technology and Clinical Applications:

1 of 2 people found the following review helpful. Emerging Technology!By ECKThis book is wonderful if you are severly interested in CIS. I go to Johns Hopkins where Dr. Taylor actually teaches the class. The book is well written and covers alot of interesting subjects pertaining to the emerging field of CIS. This is the definitive case and information book for getting info on CIS.

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.

Computer-Integrated Surgery is very timely, informative and will become the seminal reference for this exciting new and rapidly emerging field. (William R. Brody, M.D., Ph.D., Provost, Academic Health Center University of Minnesota)The surgical act probably remains the most delicate process we have to master due to the extraordinary complexity of the human body and to the heavy consequences of a microscopic error. A successful operation demands a perfect observation, a correct evaluation and precision in the motion of surgical tools. We still cannot replace the surgeon with automatic machines, nor is it desirable to do so. However, the future will be devoted to powerful surgical assistance with sensors, robots and virtual reality systems which will ensure a high level of safety in any surgical intervention. During recent years, great imporvements have taken place concerning the mastering of these techniques.This book is a beautiful illustration of these progresses and represents a landmark in matters of man-machine cooperation. It will be useful not only to those involved in the medical sector, but to any robotician, computer scientist and, finally, to any engineer or researcher interested in authomatic control. (Philippe Coiffet, Director of Research at CNRS, and Professor at INSTN)The editors provide an up to date compendium of 3D imaging technology and its use to guide surgery. World renown authors provide descriptions of their initial experiences in this field. Readers can get an excellent appreciation of where image guided surgery is now, as well as an appreciation of where it will be within the next decade. (S. James Zinreich, M.D., Associate Professor, Radiology, and Associate Professor, Otolaryngology/Head Neck Surgery, Johns Hopkins Medicine)A magnificent, comprehensive and carefully edited collection. These state-of-the-art papers pave the way for the innovative use of computer and robotics technology in surgery. I am excited by the tremendous benefits that these innovations will lead to. This book is a must read for scientists in the field. (Takeo Kanade, Director of the robotics Institute, U.A. and Helen Whitaker Professor, Carnegie Mellon University) Computer-Integrated Surgery is a remarkable and timely survey of the diverse spectrum of technology and state of the art applications which together make up one of the most exciting and rapidly-growing fields to emerge from the application of computer science and robotics in medicine. Authored by leading investigators and practitioners in CIS, the coverage is expansive. The wealth of information is thoughfully organized - and thus made accessible - around the central themes of surgeon-machine partnership, the synergy between planning and execution, and common architectural elements of CIS systems. This volume - the first of its nature - is sure to inspire future research and development in an area that promises important benefits to patient care. (Ruzena Bajcsy, Professor of Computer and Information Science, Director of GRASP Laboratory, University of Pennsylvania)A remarkable tour de force; a sweeping, encyclopedic overview of the state of the art and current trends in computer-aided surgery. The editors, who are also pioneers in the field and authors of a number of the chapters, have selected most of the other leaders in the field throughout the world as co-authors to create this excellent blend of the basic technology (in such areas as data acquisition, registration, imaging, and robotics), with applications in the most important clinical areas. The material is presented in 58 chapters which are grouped into 15 sections; the introductions to these sections are required reading, they are gems which encapsulate the main ideas in a couple of pages.Robots are treated as they should be: as surgical devices, as extensions of computers which may assist the surgeon in the positioning and movement of sensors and instruments. The blend of science, technology and application in this book will make it an important reference in the field for many years to come. (George A. Bekey, Professor of Computer Science and Biomedical Engineering, Director, Robotics Research Laboratory, University of Southern California)This book is a state of the art review for what is likely to be the most important revolution in neurosurgical technique since the introduction of the operating microscopy in neurosurgical practice. The authors are authoritative, the topics exhaustive, and the quality is outstanding. This will be a reference in this burgeoning field for some time to come. (Don M. Long, M.D., Ph. D., Director, DEpartment of Neurosurgery, Johns Hopkins Medical Institutions)New technologies such as medical imaging, surgical navigation, robotics, virtual reality, and surgical simulation may soon influence the way we design, plan, simulate, and execute surgical procedures. Successful clinical introduction of some of these technologies has emerged as a fast growing field of research and development. This book reflects the current state of the art in computer integrated surgery, providing engineers, scientists, and clinicians with an invaluable reference source on the subject. (Dr. Lutz-P. Nolte, Head of the Orthopaedic Biomechanics Division, M.E. Mller Institute for Biomechanics, University of Bern, Switzerland)About the AuthorRussell H. Taylor is Professor of

Computer Science at Johns Hopkins University. Stphane Lavalle is a CNRS Researcher, Computer Assisted Surgery Group, TIMC Laboratory, Grenoble, France. Grigore C. Burdea is Associate Professor of Computer Engineering, Rutgers, The State University of New Jersey. Ralph Msges is Head of Clinical Research, Department of Otorhinolaryngology, Aachen Technical University, Aachen, Germany.