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Nota di contenuto	Soft Tissue Properties and Modeling -- Experimental Observation and Modelling of Preconditioning in Soft Biological Tissues -- The Effects of Testing Environment on the Viscoelastic Properties of Soft Tissues -- Comparison of Linear and Non-linear Soft Tissue Models with Post-operative CT Scan in Maxillofacial Surgery -- Characterization of Soft-Tissue Material Properties: Large Deformation Analysis -- Design, Development, and Testing of an Automated Laparoscopic Grasper with 3-D Force Measurement Capability -- A Finite Element Study of the Influence of the Osteotomy Surface on the Backward Displacement during Exophthalmia Reduction -- Liver Vessel Parameter Estimation

from Tactile Imaging Information -- A Nonlinear Finite Element Model of Soft Tissue Indentation -- Indentation for Estimating the Human Tongue Soft Tissues Constitutive Law: Application to a 3D Biomechanical Model -- Comparison of Knee Cruciate Ligaments Models Using In-vivo Step Up-Down Kinematics -- Real-Time Deformable Models -- Multigrid Integration for Interactive Deformable Body Simulation -- A Suture Model for Surgical Simulation -- Real-Time Incision Simulation Using Discontinuous Free Form Deformation -- An Interactive Parallel Multigrid FEM Simulator -- On Extended Finite Element Method (XFEM) for Modelling of Organ Deformations Associated with Surgical Cuts -- Mechanical Representation of Shape-Retaining Chain Linked Model for Real-Time Haptic Rendering -- Interactive Real-Time Simulation of the Internal Limiting Membrane -- Haptic Rendering -- Haptic Display for All Degrees of Freedom of a Simulator for Flexible Endoscopy -- Surface Contact and Reaction Force Models for Laparoscopic Simulation -- A New Methodology to Characterize Sensory Interaction for Use in Laparoscopic Surgery Simulation -- A Study on the Perception of Haptics in Surgical Simulation -- Anatomical Modeling -- Image-Guided Analysis of Shoulder Pathologies: Modelling the 3D Deformation of the Subacromial Space during Arm Flexion and Abduction -- The Application of Embedded and Tubular Structure to Tissue Identification for the Computation of Patient-Specific Neurosurgical Simulation Models -- Soft Tissue Surface Scanning – A Comparison of Commercial 3D Object Scanners for Surgical Simulation Content Creation and Medical Education Applications -- Coherent Scene Generation for Surgical Simulators -- Build-and-Insert: Anatomical Structure Generation for Surgical Simulators -- Applications and Development Frameworks -- GiPSi: An Open Source/Open Architecture Software Development Framework for Surgical Simulation -- CathI – Training System for PTCA. A Step Closer to Reality -- Physical Model Language: Towards a Unified Representation for Continuous and Discrete Models -- Multi-axis Mechanical Simulator for Epidural Needle Insertion -- Towards a Complete Intra-operative CT-Free Navigation System for Anterior Cruciate Ligament Reconstruction -- A Framework for Biomechanical Simulation of Cranio-Maxillofacial Surgery Interventions.

Sommario/riassunto

This book contains the written contributions to the International Symposium on th Medical Simulation (ISMS’04) held in Cambridge, Massachusetts, USA on June 17 th and June 18 , 2004. Manuscripts are organized around five thematic sections relating to the multidisciplinary field of Medical Simulation: Soft Tissue Properties and Modeling, Haptic Rendering, Real-Time Deformable Models, Anatomical Modeling, and Development Frameworks. The objectives of the symposium are to gather researchers to present their most recent, and promising work, to highlight research trends and foster dialogue and debates among participants. Live demonstrations are also included at the meeting, but cannot be included in this volume. Finally, to address questions about areas for improvement and future directions of the field, we organized a panel of experts including technical, medical and educational representatives. This event continues the successful symposium organized by Hervé Delingette and Nicholas Ayache, in France in June 2003. At that meeting we agreed that it would be beneficial for the community to have an annual gathering for the medical simulation community where researchers can exchange ideas and share their work in this emerging field. ISMS’04 is co-organized by CIMIT / Harvard Medical School and Rutgers University.