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| Disciplina              | 610.28   |
| Soggetti                | Biomedical engineering<br>Mathematics - Data processing<br>Mechanics, Applied<br>Radiology<br>Medical physics<br>Automatic control<br>Robotics<br>Automation<br>Biomedical Engineering and Bioengineering<br>Computational Science and Engineering<br>Engineering Mechanics<br>Medical Physics<br>Control, Robotics, Automation  |
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| Livello bibliografico   | Monografia   |
| Nota di contenuto       | Chapter1: Making head and neck reconstruction surgery an engineering process -- Chapter2: Atlas of Acceleration-Induced Brain Deformation from Measurements in Vivo -- Chapter3: Reconstruction of Real-World Car-to-Pedestrian Accident Using Computational Biomechanics Model: Effects of the Choice of Boundary Conditions of the Brain on Brain Injury Risk -- Chapter4: Computational Modeling of Fluid-Structure Interaction between Blood Flow and Mitral Valve -- Chapter5: Maximum Principal AAA Wall Stress is Proportional to Wall Thickness -- Chapter6: |

An Immersed Boundary Method for Detail-Preserving Soft Tissue Simulation from Medical Images -- Chapter7: A Flux-Conservative Finite Difference scheme for the numerical solution of the nonlinear bioheat equation -- Chapter8: Quantifying Carotid Pulse Waveforms Using Subpixel Image Registration -- Chapter9: A Discrete Element Method for modelling cell mechanics – application to the simulation of chondrocyte behavior in the growth plate -- Chapter10: Image-based biomechanical modelling of heart failure -- Chapter11: A comparison of biomechanical models for MRI to digital breast tomosynthesis 3D registration -- Chapter12: Towards a real-time full-field stereoscopic imaging system for tracking lung surface deformation under pressure controlled ventilation -- Chapter13: Patient-specific simulation: non-destructive identification method for soft tissue under large strain – Application to pelvic system -- Chapter14: Simulating Platelet Transport in Type-B Aortic Dissection.

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Sommario/riassunto

This volume comprises the latest developments in both fundamental science and patient-specific applications, discussing topics such as: cellular mechanics, injury biomechanics, biomechanics of the heart and vascular system, algorithms of computational biomechanics for medical image analysis, and both patient-specific fluid dynamics and solid mechanics simulations. With contributions from researchers worldwide, *Computational Biomechanics for Medicine: Measurements, Models, and Predictions* provides an opportunity for specialists in the field to present their latest methodologies and advancements.

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