

1. Record Nr.	UNINA9910627283703321
Titolo	Computational Biomechanics for Medicine : Towards Translation and Better Patient Outcomes // edited by Poul M.F. Nielsen, Martyn P. Nash, Xinshan Li, Karol Miller, Adam Wittek
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2022
ISBN	3-031-09327-5
Edizione	[1st ed. 2022.]
Descrizione fisica	1 online resource (194 pages)
Disciplina	610.285
Soggetti	Biomedical engineering Biomechanics Continuum mechanics Bioinformatics Biomechanical Analysis and Modeling Continuum Mechanics Computational and Systems Biology
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	PART I: Solid mechanics -- Towards accurate measurement of abdominal aortic aneurysm wall thickness from CT and MRI -- Patient-specific finite element modeling of aneurysmal dilatation after chronic type B aortic dissection -- Characterizing the biomechanics of cerebral aneurysms by geometrically nonlinear Kirchhoff–Love shells of nonuniform thickness -- Imaging-based patient-specific biomechanical evaluation of atherosclerosis and aneurysm: a comparison between structural-only, fluid-only and fluid-structure interaction analysis -- Automatic framework for patient-specific biomechanical computations of organ deformation: an epilepsy (EEG) case study -- Generating scoliotic computed tomography volumes from finite element spine models -- Morphological variation in an endothelial cell population: a virtual-cell model -- PART II: Fluid mechanics -- Efficient and accurate computation of quantitative flow ratio (QFR) for physiological assessment of coronary artery stenosis

from a single angiographic view -- Predicting plaque progression in patient-specific carotid bifurcation -- PART III: Imaging -- Assessing fibre reorientation in soft tissues with simultaneous Mueller matrix imaging and mechanical testing -- A direct geometry processing cartilage generation method for datasets with poor cartilage visibility -- Development of an open source, low-cost imaging system for continuous lung monitoring in ICU -- Measuring three-dimensional surface deformations of skin using a stereoscopic system and intrinsic features.

Sommario/riassunto

This book presents contributions from the MICCAI 2021 Computational Biomechanics for Medicine Workshop. "Computational Biomechanics for Medicine - towards translation and better patient outcomes" comprises papers accepted for the MICCAI Computational Biomechanics for Medicine Workshop held virtually in conjunction with Medical Image Computing and Computer Assisted Intervention conference 2021, based in Strasbourg. The content focuses on methods and applications of computational biomechanics to medical image analysis, image-guided surgery, surgical simulation, surgical intervention planning, disease prognosis and diagnostics, analysis of injury mechanisms, implant and prostheses design, as well as artificial organ design and medical robotics. This book details state-of-the-art progress in the above fields to researchers, students, and professionals.
