1. Record Nr. UNINA9910627277303321

Titolo	Computer Methods, Imaging and Visualization in Biomechanics and Biomedical Engineering II : Selected Papers from the 17th International Symposium CMBBE and 5th Conference on Imaging and Visualization, September 7-9, 2021 / / edited by João Manuel R. S. Tavares, Christoph Bourauel, Liesbet Geris, Jos Vander Slote
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2023
ISBN	3-031-10015-8
Edizione	[1st ed. 2023.]
Descrizione fisica	1 online resource (304 pages)
Collana	Lecture Notes in Computational Vision and Biomechanics, , 2212-9413 ; ; 38
Disciplina	610.28 610.285
Soggetti	Biomedical engineering Biomechanics Biophysics Machine learning Bioinformatics Biomechanical Analysis and Modeling Bioanalysis and Bioimaging Machine Learning Computational and Systems Biology
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	A Spatial Markov Chain Cellular Automata Model for the Spread of Viruses -- A Novel Review of Temporomandibular Joint Replacement Options -- Could an Exoskeleton-driven Rehabilitation Treatment Improve Muscle Forces Generation in PD? A Pilot Study -- EMG Signals as a Way to Control Soft Actuators -- Movement Optimization through Musculoskeletal Modeling and Multidimensional Surface Interpolation -- Simulating the Dynamics of a Human-Exoskeleton System Using Kinematic Data with Misalignment between the Human and Exoskeleton Joints -- Modeling of Nonlinear Ultrasound Propagation in Trans-

cranial MRgFUS Technique: A 2D-FEM Analysis -- Predicting Neurological Effects Associated with Traumatic Brain Injuries Using Video Analysis and Finite Element Modeling -- Dense-discrete Phase Simulations of Blood Flow in a Stenotic Coronary -- Predicting the Efficacy of Stalk Cells Following Leading Cells through a Micro-Channel Using Morphoelasticity and a Cell Shape Evolution Model -- Simulation of Cell Proliferation using a Meshless Tool -- Explicit Non-linear Finite Element Analysis for Prediction of Primary Stability in Uncemented Total Hip Arthroplasty -- Hemodynamic Effects of Entry Versus Exit Tear Size and Tissue Stiffness in Simulations of Aortic Dissection -- Reproducibility of in Vivo Constitutive Parameter Identi-Fication Based on 4D Ultrasound Strain Imaging -- A Systematic Review of the Uses and Benefits of 3-D printing in Orthopaedic Surgery.

Sommario/riassunto

This book gathers selected, extended and revised contributions to the 17th International Symposium on Computer Methods in Biomechanics and Biomedical Engineering and the 5th Conference on Imaging and Visualization (CMBBE 2021), held online on September 7-9, 2021, from Bonn, Germany. It reports on cutting-edge models, algorithms and imaging techniques for studying cells, tissues and organs in normal and pathological conditions. It covers numerical and machine learning methods, finite element modeling and virtual reality techniques, applied to understand biomechanics of movement, fluid and soft tissue biomechanics. It also reports on related advances in rehabilitation, surgery and diagnosis. All in all, this book offers a timely snapshot of the latest research and current challenges at the interface between biomedical engineering, computational biomechanics and biological imaging. Thus, it is expected to provide a source of inspiration for future research and cross-disciplinary collaborations.