1. Record Nr. UNINA9910791911503321

Titolo	Advanced structural and functional materials for protection : selected, peer reviewed papers from the Symposium T on Advanced Structural and Functional Materials for Protection, International Conference on Materials for Advanced Technologies (ICMAT2011), International Convention & Exhibition Centre June 26 - July 1, 2011, Singapore / / edited by Ma Jan and Santhiagu Ezhilvalavan
Pubbl/distr/stampa	Durnten-Zurich, Switzerland : , : Trans Tech Publications, , 2012 ©2012
ISBN	3-03813-698-0
Descrizione fisica	1 online resource (149 p.)
Collana	Solid State Phenomena, , 1662-9787 ; ; Volumes 185
Altri autori (Persone)	JanMa EzhilvalavanSanthiagu
Disciplina	623.38
Soggetti	Smart materials Textile fabrics - Technological innovations
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references at the end of each chapters and indexes.
Nota di contenuto	Advanced Structural and Functional Materials for Protection, ICMAT 2011; Preface; Table of Contents; ZnO Nanostructures for Sensor Applications; Wave Scattering Phenomena for Health Monitoring of Hard-to-Inspect Defects ; Thermoelectric Properties of N-Type Bi2Te2. 7Se0.3 and P-Type Bi0.5Sb1.5Te3 Films for Micro-Cooler Applications; Atomic Layer Deposition of Thin Inorganic Coatings onto Renewable Packaging Materials; Corrosion Resistance of Pulse-Electroplated Ni-W Alloys; Development of Piezoelectric Diaphragm Pump Multiwalled Carbon Nanotubes Reinforced Portland Cement Composites for Smoke DetectionImproved Electrical and Mechanical Properties of Niti/TiOx/PZT/TiOx Thin Film Heterostructures; Investigation of Trapped Charges-Induced Stain Formation on RF-PECVD Diamond-Like Carbon Films; Athermal Martensites, Temperature-Time-Transformation Diagrams and Thermal Hysteresis: Monte Carlo Simulations of Strain Pseudospins; Developing Woven Enhanced Silk Fabric for Ballistic Protection; Effect of In Doping on Thermoelectric and

Magnetoresistive Properties of ZnO Films Prepared by RF Magnetron Sputtering
Fabrication and Spectroscopic Properties of Transparent Yb:YAG Laser CeramicsOn the Design of Bi-Layer Armor Materials; Fabrication and Properties of High Quality Transparent Ho:YAG Ceramics; Fabrication and Upconversion Luminescence of Highly Transparent Er:YAG Ceramics; Electro-Optic Properties of (100)-Oriented (Pb,La(Zr,Ti)O3 Thin Film; Novel Piezoelectric Tactile Sensor Materials with Improved Properties; ZnO Surface Acoustic Wave Sensor for the Enhanced Detection of DMMP; Study on the Growth and Corrosion Resistance of Manganese Phosphate Coatings on 25Cr2Ni4WA Alloy Steel
Investigating the Thermoelectric and Structural Properties of Bismuth Telluride Thin Films for Harvesting Energy from Waste HeatMechanical Properties of AlCrTiSiN Coatings Developed by Cathodic Arc for Protection Applications; Evolution of Microstructures on GTA Welded AISI304 Subjected to Hot Corrosion at 700°C under Na2SO4 + V2O5 (60%); Assessment of Mechanical and Corrosion Properties of GTA Welded Monel 400 Plates Exposed to Air Oxidation at 700°C
Enhancing the Char Resistant of Expandable Graphite Based Intumescent Fire Retardant Coatings by Using Multi-Wall Carbon Nano Tubes for Structural SteelEffect of Sputtering Process Parameters on the Thermoelectric Properties of P and N-Type Bi2Te3 Films; Damage Monitoring in Realistic Structures Using Lamb Waves; Effects of Sintering Temperature and Cooling Rate on Mechanical Properties of Powder Injection Molded 316L Stainless Steel; Developing New Sol-Gel Surface Treatments Formulation for Bonded Repair of Aircraft
Green Inhibitors: Anti Corrosive Propensity of Garcinia mangostana for Aluminum 1100

Sommario/riassunto

This collection of 37 papers describes materials for protecting civilians and soldiers against vehicle collision, blast-damage, fragmentation and unconventional attack. They also treat multi-functional materials for enhancing civilian and soldier performance under extreme conditions. The detailed topics include the atomic-layer deposition of thin inorganic coatings into renewable packaging materials, the development of woven enhanced silk fabric for ballistic protection, novel piezo-electric tactile sensor materials having improved properties, enhancement of the char resistance of expandable g

2. Record Nr. UNINA9910735396003321

Autore	Scataglini Sofia
Titolo	Advances in Digital Human Modeling : Proceedings of the 8th International Digital Human Modeling Symposium, 4-6 September 2023, Antwerp, Belgium / / edited by Sofia Scataglini, Gregor Harih, Wim Saeys, Steven Truijen
Pubbl/distr/stampa	Cham : , : Springer Nature Switzerland : , : Imprint : Springer, , 2023
ISBN	9783031378485 3031378482
Edizione	[1st ed. 2023.]
Descrizione fisica	1 online resource (312 pages)
Collana	Lecture Notes in Networks and Systems, , 2367-3389 ; ; 744
Altri autori (Persone)	HarihGregor SaeysWim TruijenSteven <1969->
Disciplina	620.820113
Soggetti	Biomedical engineering Biomechanics Robotics Engineering design Biomechanical Analysis and Modeling Engineering Design
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Intro -- Preface -- Organization -- Contents -- Finite Element Analysis of the Donning Phase of a Prosthetic Socket for Transfemoral Amputees -- 1 Introduction -- 2 Materials and Methods -- 3 Results -- 4 Discussion -- 5 Conclusions -- References -- Joint-Based Metabolic Energy Expenditure for Physiology Simulation in Digital Human Avatars -- 1 Introduction -- 2 Methods -- 2.1 Joint-Based Metabolic Energy Expenditure -- 2.2 Motion Data Collection -- 2.3 Motion Data Export to OpenSim -- 2.4 Simulating Ground Reaction Forces -- 2.5 Joint Torque and MEE Calculations -- 2.6 Analysis -- 3 Results and Discussion -- 4 Conclusion -- References -- Effectiveness of the Exo4work Shoulder Exoskeleton on Full-Body Musculoskeletal Loading - A Case Study in the Workplace -- 1 Introduction -- 2 Methods -- 3 Results -- 4 Discussion -- 5 Conclusion -- 6

Supplementary -- References -- Bridging the Gap Between Body Scanning and Ergonomic Simulation of Human Body Interaction in Autonomous Car Interiors -- 1 Introduction -- 2 Materials and Methods -- 2.1 Experimental Study -- 2.2 Data Processing -- 3 Results and Discussion -- 4 Conclusions -- References -- Towards Enhanced Functionality and Usability of Giving Manikin Task Instructions in a DHM Tool -- 1 Introduction -- 2 IPS IMMA -- 3 Improving the Instruction Language -- 3.1 Improving the High-Level Instructions Language -- 3.2 Automatic Inclusion of Realistic Acting in DHM Simulations -- 3.3 Improving Time Estimation of High-Level Instructions -- 4 Research Questions -- 5 Conclusion -- References -- Automated Investigation of the Breast - Bra Interaction Using 4D Scan Data and Oscillation Analysis -- 1 Introduction -- 2 Methods -- 2.1 4D Scan Data Acquisition -- 2.2 Development of an Automated 4D Scan Data Analysis Using Python and the Fast Fourier Transformation (FFT) -- 2.3 Oscillation Analysis of the Breast.
3 Results -- 3.1 Oscillation Analysis: Frequencies and Local Maxima/Minima -- 3.2 Oscillation Analysis: Amplification Factor -- 4 Conclusion and Discussion -- References -- Classification Models in Post-stroke Patients Based in Human Hand Motion -- 1 Introduction -- 2 Materials and Methods -- 2.1 Data Source -- 2.2 Hyperparameters Selection -- 2.3 Random Forest -- 2.4 K-Nearest Neighbor -- 2.5 Support Vector Machine -- 2.6 Borderline-SMOTE Data Balancing -- 3 Results -- 3.1 Performance Comparison Between Classifiers After Borderline-SMOTE -- 3.2 Performance Comparison of the Classifiers Before and After Data Balancing -- 4 Discussion -- 5 Conclusions -- References -- Estimation of Upper-Limb Joint Torques in Static and Dynamic Phases for Lifting Tasks -- 1 Introduction -- 2 Overview -- 3 Data Collection and Preparation -- 3.1 Experimental Data and Biomechanical Model -- 3.2 Joint Centers Estimation and Data Normalization -- 4 Joint Torque Estimation -- 4.1 Static Phases -- 4.2 Dynamic Phases -- 4.3 Learning and Evaluation -- 5 Results and Discussion -- References -- Comparing Weighting Algorithms for Anthropometric Datasets to Enable the Generation of Representative Digital Human Models -- 1 Introduction -- 2 Methods -- 2.1 Anthropometric Data -- 2.2 Weighting Algorithms -- 2.3 Evaluation Parameters -- 3 Results -- 4 Discussion -- References -- Workwear with Loosely Coupled IMU Sensors for Posture Classification During Assembly Tasks: A Pilot Study -- 1 Introduction -- 2 Materials and Methods -- 2.1 Participants -- 2.2 Data Acquisition -- 2.3 Assembly Tasks -- 2.4 Data Analysis -- 3 Results -- 3.1 Time-Series -- 3.2 Discrete Data -- 4 Discussion -- 5 Conclusion -- References -- Applications of Using 4D Scanning Technologies in Biomechanics -- 1 Introduction -- 2 Methods -- 2.1 Data Samples -- 2.2 Analysis of Body Segment Asymmetries.
2.3 Kinematic Analysis of Pelvic Tilt -- 3 Results -- 3.1 Asymmetry of Body Segments -- 3.2 Influence of Anatomical Landmark Definitions on Pelvic Tilt -- 4 Discussion -- 5 Conclusions -- References -- Fluid-Structure Interaction Modeling of Peak Expiratory-Inspiratory Flow in a Stented Upper Airway Using Experimental Data -- 1 Introduction -- 2 Research Methods -- 2.1 Geometry of the Model -- 2.2 Governing Equations of the Fluid-Solid Field -- 2.3 Boundary Conditions and Validation -- 3 Results and Discussion -- 4 Conclusions -- References -- Validation of Computationally Estimated Human Body-Seat Contact Forces During Sitting -- 1 Introduction -- 2 Methods -- 2.1 Experimental Data -- 2.2 Data Reduction -- 2.3 Computed Contact Forces -- 2.4 Data Analysis -- 3 Results -- 4 Discussion -- References -- Does the Initial Guess Affect the Estimations of Knee Ligaments

Properties via Optimization Procedures? -- 1 Introduction -- 2 Methods -- 2.1 Experimental Data -- 2.2 Data Reduction -- 2.3 Computational Model -- 2.4 Experimental Laxity Profiles -- 2.5 Ligament Properties Prediction -- 3 Results -- 4 Discussion -- References -- Influence of the Experimental Protocol and the Optimization Method on the Noninvasive Estimation of Knee Ligaments Properties -- 1 Introduction -- 2 Methods -- 2.1 Experimental Data -- 2.2 Computational Model -- 2.3 Ground Truth Simulations -- 2.4 Ligament Properties Prediction -- 3 Results -- 4 Discussion -- References -- Augmented Operators and Virtual User Manuals for Complex Industrial Systems: User Research and Scenario-Building Activities -- 1 Introduction -- 2 Methodology -- 3 Results -- 4 Discussion -- 5 Conclusions -- References -- Critical Appraisal of Using Digital Human Model, Virtual Human, Human Digital Twin and Digital Twin -- 1 Why We Need a Critical Appraisal?.
1.1 What is the Difference Between a Model and a Twin? -- 1.2 Twinning Between Physical and Virtual -- 1.3 What is the Difference Between Virtual human, Human Digital Twins, Digital Twin, and Digital Human Models? -- 2 Conclusion -- References -- Joint Movement Assessment Applied to Unilateral Amputee Cycling -- 1 Introduction -- 2 Method -- 2.1 Cycling Prostheses -- 2.2 Experimental Setup -- 2.3 Movement Assessment -- 3 Results -- 4 Discussion -- 5 Conclusion -- References -- A Workflow for Deforming External Body Shapes with the Help of an Anatomically Correct Skeletal Model -- 1 Introduction -- 2 Materials and Methods -- 2.1 Registration (Step I) -- 2.2 Skeleton Definition (Step II) -- 2.3 Postural Change Between Initial and Target Postures (Step III) -- 2.4 Skinning Deformation (Step IV) -- 2.5 Evaluation -- 3 Results -- 4 Discussion -- 5 Conclusion -- References -- Modelling Neck Postural Stabilization Using Optimal Control Techniques for Dynamic Driving -- 1 Introduction -- 2 Methods -- 2.1 DIPM Setup -- 2.2 MPC Setup -- 2.3 Weight Optimization -- 3 Results -- 3.1 Model Optimized Weights -- 3.2 Model Validation -- 4 Conclusion -- References -- Comparison of Wearable Inertial Sensors and RGB-D Cameras for Ergonomic Risk Assessment -- 1 Introduction and Literature Review -- 2 Methods -- 2.1 Experimental Settings and Procedure -- 2.2 Data Analysis and Calculation of Joint Angles -- 3 Results -- 4 Discussion and Concluding Remarks -- References -- Living Space Simulator: Visualizing Estimations of Childhood Injury Risk Based on Geometric Reachability -- 1 Introduction -- 2 Posture Generation for Reachability Check Using a Child Digital Human Model -- 3 Visualizing Plausibly Risky Regions Based on Reachability Using Statistical Behavioral Dimension Values -- 3.1 Reachable Area on the Horizontal Plane -- 3.2 Climbable Region.
4 Example of Risk Visualization for Indoor Environment Model -- 5 Conclusions -- References -- The Modelling of Bariatric Populations in Digital Human Modelling Systems -- 1 Introduction -- 2 Method -- 2.1 How to Create DHMs for the Bariatric Population Using Anthropometric Data -- 2.2 Testing of the DHMs by the End User -- 3 Results -- 3.1 The Pilot Bariatric DHMs -- 3.2 The Initial Testing of the Bariatric DHMs by the Medical Device Manufacturer Human Factors Team -- 4 Discussion -- 5 Limitations -- 6 Conclusions -- References -- Can a Numerical Digital Human Finger Model Predict Subjective Comfort Rating of Handheld Products? -- 1 Introduction -- 2 Methods -- 2.1 Optimal Material Properties Determination Using FEM -- 2.2 Manufacturing of Deformable Handles and Material Properties Measurement -- 2.3 Task Definition and Subjective Comfort Measurement -- 3 Results -- 4 Discussion -- 5 Conclusion --

References -- Simulation of Ergonomic Assembly Through a Digital Human Modeling Software -- 1 Introduction -- 1.1 Digital Human Modelling -- 1.2 Ergonomics Assessments -- 2 Methodology -- 2.1 Ergonomics Assessment Method Selection -- 2.2 DHM Implementation -- 2.3 Industry Case Validation -- 3 Results -- 3.1 Ergonomics Assessment Method Evaluation -- 3.2 DHM Integration -- 3.3 Industrial Case -- 4 Discussion -- 5 Conclusion -- References -- Towards an Approach for a Holistic Ergonomic Work Design Using Physical and Cognitive Digital Human Models -- 1 Multiple Usage of Digital Human Models -- 2 Physical and Cognitive Digital Human Models -- 2.1 Physical Human Models: Anthropometric and Biomechanical Digital Human Models -- 2.2 First Extension of Physical DHM with Cognitive Analysis -- 2.3 Cognitive Models of Human Behavior -- 2.4 First Extensions of Cognitive Models to Physical Interactions -- 3 Using Physical and Cognitive Digital Human Models.
3.1 Use Case: Machine Operation Center and Related Work Activities.

Sommario/riassunto

This book reports on advances in human modeling techniques, covering cutting-edge algorithms and their practical implementation in health and medicine, automotive, clothing, virtual reality simulations, robotics, and assistive technologies. Gathering the proceedings of the 8th International Digital Human Modeling Symposium, held on September 4-6, 2023, in Antwerp, Belgium, it offers a timely snapshot on interdisciplinary, applied research, at the interface between computer science, ergonomics, engineering, design, health and technologies.