Jose F Rodriguez Matas

List of Publications by Year
in descending order

108	3,652	126708	143772
papers	citations	33 h-index	57 g-index

111	111	111	3367
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	Mechanical behavior of acrylonitrile butadiene styrene (ABS) fused deposition materials. Experimental investigation. Rapid Prototyping Journal, 2001, 7, 148-158.	1.6	292
2	Verification of cardiac tissue electrophysiology simulators using an N -version benchmark. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2011, 369, 4331-4351.	1.6	253
3	Mechanical behavior of acrylonitrile butadiene styrene fused deposition materials modeling. Rapid Prototyping Journal, 2003, 9, 219-230.	1.6	215
4	Characterization of the mesostructure of fusedâ€deposition acrylonitrileâ€butadieneâ€styrene materials. Rapid Prototyping Journal, 2000, 6, 175-186.	1.6	176
5	Mechanical Stresses in Abdominal Aortic Aneurysms: Influence of Diameter, Asymmetry, and Material Anisotropy. Journal of Biomechanical Engineering, 2008, 130, 021023.	0.6	136
6	Trust Region Augmented Lagrangian Methods for Sequential Response Surface Approximation and Optimization. Journal of Mechanical Design, Transactions of the ASME, 1998, 120, 58-66.	1.7	116
7	Design of Fused-Deposition ABS Components for Stiffness and Strength. Journal of Mechanical Design, Transactions of the ASME, 2003, 125, 545-551.	1.7	112
8	Adaptive Macro Finite Elements for the Numerical Solution of Monodomain Equations in Cardiac Electrophysiology. Annals of Biomedical Engineering, 2010, 38, 2331-2345.	1.3	109
9	Convergence of trust region augmented Lagrangian methods using variable fidelity approximation data. Structural Optimization, 1998, 15, 141-156.	0.7	95
10	A stochastic-structurally based three dimensional finite-strain damage model for fibrous soft tissue. Journal of the Mechanics and Physics of Solids, 2006, 54, 864-886.	2.3	91
11	An experimental study of the mouse skin behaviour: Damage and inelastic aspects. Journal of Biomechanics, 2008, 41, 93-99.	0.9	86
12	Sequential approximate optimization using variable fidelity response surface approximations. Structural and Multidisciplinary Optimization, 2001, 22, 24-34.	1.7	80
13	A constitutive model for fibrous tissues considering collagen fiber crimp. International Journal of Non-Linear Mechanics, 2007, 42, 391-402.	1.4	77
14	Detailed Anatomical and Electrophysiological Models of Human Atria and Torso for the Simulation of Atrial Activation. PLoS ONE, 2015, 10, e0141573.	1.1	77
15	Coupled Biomechanical Response of the Cornea Assessed by Non-Contact Tonometry. A Simulation Study. PLoS ONE, 2015, 10, e0121486.	1.1	72
16	Mechanical characterization and numerical simulation of polyetherâ€“etherâ€“ketone (PEEK) cranial implants. Journal of the Mechanical Behavior of Biomedical Materials, 2011, 4, 1819-1832.	1.5	70
17	Trust region model management in multidisciplinary design optimization. Journal of Computational and Applied Mathematics, 2000, 124, 139-154.	1.1	68
18	Evaluation of an aortic valve prosthesis: Fluid-structure interaction or structural simulation?. Journal of Biomechanics, 2017, 58, 45-51.	0.9	67

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19	Structural damage models for fibrous biological soft tissues. International Journal of Solids and Structures, 2007, 44, 5894-5911.	1.3	65
20	mRNA Expression Levels in Failing Human Hearts Predict Cellular Electrophysiological Remodeling: A Population-Based Simulation Study. PLoS ONE, 2013, 8, e56359.	1.1	61
21	On the Modeling of Patient-Specific Transcatheter Aortic Valve Replacement: A Fluidâ€“Structure Interaction Approach. Cardiovascular Engineering and Technology, 2019, 10, 437-455.	0.7	61
22	A Pull-Back Algorithm to Determine the Unloaded Vascular Geometry in Anisotropic Hyperelastic AAA Passive Mechanics. Annals of Biomedical Engineering, 2013, 41, 694-708.	1.3	58
23	The Effect of Material Model Formulation in the Stress Analysis of Abdominal Aortic Aneurysms. Annals of Biomedical Engineering, 2009, 37, 2218-2221.	1.3	56
24	Interactive effect of beta-adrenergic stimulation and mechanical stretch on low-frequency oscillations of ventricular action potential duration in humans. Journal of Molecular and Cellular Cardiology, 2016, 97, 93-105.	0.9	56
25	Patient specific stress and rupture analysis of ascending thoracic aneurysms. Journal of Biomechanics, 2015, 48, 1836-1843.	0.9	55
26	New Sequential and Parallel Derivative-Free Algorithms for Unconstrained Minimization. SIAM Journal on Optimization, 2002, 13, 79-96.	1.2	53
27	Factors affecting basket catheter detection of real and phantom rotors in the atria: A computational study. PLoS Computational Biology, 2018, 14, e1006017.	1.5	52
28	A 3D electro-mechanical continuum model for simulating skeletal muscle contraction. Journal of Theoretical Biology, 2013, 335, 108-118.	0.8	44
29	Numerical framework for patientâ€specific computational modelling of vascular tissue. International Journal for Numerical Methods in Biomedical Engineering, 2010, 26, 35-51.	1.0	42
30	A human ventricular cell model for investigation of cardiac arrhythmias under hyperkalaemic conditions. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2011, 369, 4205-4232.	1.6	40
31	Quantification of Restitution Dispersion From the Dynamic Changes of the T-Wave Peak to End, Measured at the Surface ECG. IEEE Transactions on Biomedical Engineering, 2011, 58, 1172-1182.	2.5	39
32	Applicability assessment of a stent-retriever thrombectomy finite-element model. Interface Focus, 2021, 11, 20190123.	1.5	39
33	Automatized Patient-Specific Methodology for Numerical Determination of Biomechanical Corneal Response. Annals of Biomedical Engineering, 2016, 44, 1753-1772.	1.3	38
34	Finite element implementation of a stochastic three dimensional finite-strain damage model for fibrous soft tissue. Computer Methods in Applied Mechanics and Engineering, 2008, 197, 946-958.	3.4	35
35	Computing patient-specific hemodynamics in stented femoral artery models obtained from computed tomography using a validated 3D reconstruction method. Medical Engineering and Physics, 2020, 75, 23-35.	0.8	30
36	Nonlinear mechanical property of tracheal cartilage: A theoretical and experimental study. Journal of Biomechanics, 2008, 41, 1995-2002.	0.9	29

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37	Study on the Accuracy of Structural and FSI Heart Valves Simulations. Cardiovascular Engineering and Technology, 2018, 9, 723-738.	0.7	28
38	On the Impact of Intraluminal Thrombus Mechanical Behavior in AAA Passive Mechanics. Annals of Biomedical Engineering, 2015, 43, 2253-2264.	1.3	26
39	A predictive tool for determining patient-specific mechanical properties of human corneal tissue. Computer Methods in Applied Mechanics and Engineering, 2017, 317, 226-247.	3.4	25
40	The first virtual patient-specific thrombectomy procedure. Journal of Biomechanics, 2021, 126, 110622.	0.9	25
41	Interaction of Specialized Cardiac Conduction System With Antiarrhythmic Drugs: A Simulation Study. IEEE Transactions on Biomedical Engineering, 2011, 58, 3475-3478.	2.5	24
42	GPU accelerated solver for nonlinear reactionâ€“diffusion systems. Application to the electrophysiology problem. Computer Physics Communications, 2015, 196, 280-289.	3.0	24
43	The impact of calcification patterns in transcatheter aortic valve performance: a fluid-structure interaction analysis. Computer Methods in Biomechanics and Biomedical Engineering, 2021, 24, 375-383.	0.9	24
44	An interactive multiobjective optimization design strategy for decision based multidisciplinary design. Engineering Optimization, 2002, 34, 523-544.	1.5	23
45	The Effect of Cell Morphology on the Permeability of the Nuclear Envelope to Diffusive Factors. Frontiers in Physiology, 2018, 9, 925.	1.3	20
46	Fourth-order compact schemes with adaptive time step for monodomain reactionâ€“diffusion equations. Journal of Computational and Applied Mathematics, 2008, 216, 39-55.	1.1	18
47	Multiscale Computational Modeling of Vascular Adaptation: A Systems Biology Approach Using Agent-Based Models. Frontiers in Bioengineering and Biotechnology, 2021, 9, 744560.	2.0	18
48	Buried Pipe Modeling With Initial Imperfections. Journal of Pressure Vessel Technology, Transactions of the ASME, 2004, 126, 250-257.	0.4	16
49	Dominant frequency and organization index maps in a realistic three-dimensional computational model of atrial fibrillation. Europace, 2012, 14, v25-v32.	0.7	16
50	A numerical-experimental protocol to characterize corneal tissue with an application to predict astigmatic keratotomy surgery. Journal of the Mechanical Behavior of Biomedical Materials, 2017, 74, 304-314.	1.5	16
51	Numerical Approach to Study the Behavior of an Artificial Ventricle: Fluidâ€“Structure Interaction Followed By Fluid Dynamics With Moving Boundaries. Artificial Organs, 2018, 42, E315-E324.	1.0	15
52	A predictive multiscale model of in-stent restenosis in femoral arteries: linking haemodynamics and gene expression with an agent-based model of cellular dynamics. Journal of the Royal Society Interface, 2022, 19, 20210871.	1.5	14
53	Fluidâ€“structure simulation of a general non-contact tonometry. A required complexity?. Computer Methods in Applied Mechanics and Engineering, 2018, 340, 202-215.	3.4	13
54	Does clinical data quality affect fluid-structure interaction simulations of patient-specific stenotic aortic valve models?. Journal of Biomechanics, 2019, 94, 202-210.	0.9	13

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55	The nuclear import of the transcription factor MyoD is reduced in mesenchymal stem cells grown in a 3D micro-engineered niche. Scientific Reports, 2021, 11, 3021.	1.6	13
56	Applicability analysis to evaluate credibility of an in silico thrombectomy procedure. Journal of Biomechanics, 2021, 126, 110631.	0.9	13
57	Modeling of the mechano-chemical behaviour of the nuclear pore complex: current research and perspectives. Integrative Biology (United Kingdom), 2016, 8, 1011-1021.	0.6	12
58	Biological, Geometric and Biomechanical Factors Influencing Abdominal Aortic Aneurysm Rupture Risk: A Comprehensive Review. Recent Patents on Medical Imaging, 2013, 3, 44-59.	0.1	11
59	A Methodology for the Derivation of Unloaded Abdominal Aortic Aneurysm Geometry With Experimental Validation. Journal of Biomechanical Engineering, 2016, 138, .	0.6	11
60	On Using Model Populations to Determine Mechanical Properties of Skeletal Muscle. Application to Concentric Contraction Simulation. Annals of Biomedical Engineering, 2015, 43, 2444-2455.	1.3	10
61	Microstructural model for cyclic hardening in F-actin networks crosslinked by Î±-actinin. Journal of the Mechanics and Physics of Solids, 2016, 91, 28-39.	2.3	10
62	In silico approaches for transcatheter aortic valve replacement inspection. Expert Review of Cardiovascular Therapy, 2021, 19, 61-70.	0.6	10
63	Limitations in electrophysiological model development and validation caused by differences between simulations and experimental protocols. Progress in Biophysics and Molecular Biology, 2017, 129, 53-64.	1.4	9
64	Impact of the Internal Carotid Artery Morphology on in silico Stent-Retriever Thrombectomy Outcome. Frontiers in Medical Technology, 2021, 3, 719909.	1.3	9
65	A computational optimization study of a self-expandable transcatheter aortic valve. Computers in Biology and Medicine, 2021, 139, 104942.	3.9	9
66	The perturbation method and the extended finite element method. An application to fracture mechanics problems. Fatigue and Fracture of Engineering Materials and Structures, 2006, 29, 581-587.	1.7	8
67	Why Non-contact Tonometry Tests Cannot Evaluate the Effects of Corneal Collagen Cross-linking. Journal of Refractive Surgery, 2017, 33, 184-192.	1.1	8
68	Vulnerability for reentry in a three dimensional model of human atria: a simulation study. , 2010, 2010, 224-7.		7
69	Understanding TAVR device expansion as it relates to morphology of the bicuspid aortic valve: A simulation study. PLoS ONE, 2021, 16, e0251579.	1.1	6
70	Multiscale agent-based modeling of restenosis after percutaneous transluminal angioplasty: Effects of tissue damage and hemodynamics on cellular activity. Computers in Biology and Medicine, 2022, 147, 105753.	3.9	6
71	Post-repolarization refractoriness in human ventricular cardiac cells. , 2008, , .		5
72	Flow-induced wall mechanics of patient-specific aneurysmal cerebral arteries: Nonlinear isotropic versus anisotropic wall stress. Proceedings of the Institution of Mechanical Engineers, Part H: Journal of Engineering in Medicine, 2014, 228, 37-48.	1.0	5

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73	Interaction between diurnal variations of intraocular pressure, pachymetry, and corneal response to an air puff: Preliminary evidence. JCRS Online Case Reports, 2015, 3, 12-15.	0.1	5
74	Towards the understanding of cytoskeleton fluidisationâ€“solidification regulation. Biomechanics and Modeling in Mechanobiology, 2017, 16, 1159-1169.	1.4	5
75	A two dimensional electromechanical model of a cardiomyocyte to assess intra-cellular regional mechanical heterogeneities. PLoS ONE, 2017, 12, e0182915.	1.1	5
76	A response surface optimization approach to adjust ionic current conductances of cardiac electrophysiological models. Application to the study of potassium level changes. PLoS ONE, 2018, 13, e0204411.	1.1	5
77	Modeling three-dimensional-printed trabecular metal structures with a homogenization approach: Application to hemipelvis reconstruction. International Journal of Artificial Organs, 2019, 42, 575-585.	0.7	5
78	A complementary energy approach accommodates scale differences in soft tissues. Journal of the Mechanics and Physics of Solids, 2020, 138, 103895.	2.3	5
79	Compact schemes for anisotropic reactionâ€“diffusion equations with adaptive time step. International Journal for Numerical Methods in Engineering, 2010, 82, 1022-1043.	1.5	4
80	An affine micro-sphere-based constitutive model, accounting for junctional sliding, can capture F-actin network mechanics. Computer Methods in Biomechanics and Biomedical Engineering, 2013, 16, 1002-1012.	0.9	4
81	MECHANICAL STRESS IN ABDOMINAL AORTIC ANEURYSMS USING ARTIFICIAL NEURAL NETWORKS. Journal of Mechanics in Medicine and Biology, 2015, 15, 1550029.	0.3	4
82	Vulnerability in regionally ischemic human heart. Effect of the extracellular potassium concentration. Journal of Computational Science, 2018, 24, 160-168.	1.5	4
83	A mathematical model of healthy and dystrophic skeletal muscle biomechanics. Journal of the Mechanics and Physics of Solids, 2020, 134, 103747.	2.3	4
84	Patient-specific multi-scale design optimization of transcatheter aortic valve stents. Computer Methods and Programs in Biomedicine, 2022, 221, 106912.	2.6	4
85	Self-expandable stent for thrombus removal modeling: Solid or beam finite elements?. Medical Engineering and Physics, 2022, 106, 103836.	0.8	4
86	Modeling the different sections of the cardiac conduction system to obtain realistic electrocardiograms. , 2013, 2013, 6846-9.		3
87	An atlasâ€•and dataâ€driven approach to initializing reactionâ€diffusion systems in computer cardiac electrophysiology. International Journal for Numerical Methods in Biomedical Engineering, 2017, 33, e2846.	1.0	3
88	A numerical investigationÂto evaluate the washout of blood compartments inÂa total artificial heart. Artificial Organs, 2020, 44, 976-986.	1.0	3
89	A Comparison of Regional Classification Strategies Implemented for the Population Based Approach to Modelling Atrial Fibrillation. Mathematics, 2021, 9, 1686.	1.1	3
90	Modeling Drug Effects on Personalized 3D Models of the Heart: A Simulation Study. Lecture Notes in Computer Science, 2010, , 222-231.	1.0	3

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91	Modeling the Human Heart Under Acute Ischemia. Lecture Notes in Computational Vision and Biomechanics, 2012, , 81-103.	0.5	3
92	Oscillatory regime in excitatory media with global coupling: Application to cardiac dynamics. , 2008, , .		2
93	Effect of myofibril architecture on the active contraction of dystrophic muscle. A mathematical model. Journal of the Mechanical Behavior of Biomedical Materials, 2021, 114, 104214.	1.5	2
94	Vulnerability to reentry in a 3D regionally ischemic ventricular slab preparation: A simulation study. , 2007, , .		1
95	Impact of Multiple Ionic Changes in Arrhythmic Risk Biomarkers in Human Ventricular Electrophysiology. Biophysical Journal, 2012, 102, 543a.	0.2	1
96	Personalized Corneal Biomechanics. , 2019, , 3-20.		1
97	Editorial: Atrial Fibrillation: Technology for Diagnosis, Monitoring, and Treatment. Frontiers in Physiology, 2022, 13, 848096.	1.3	1
98	MYOGENIC RESPONSE IN ELASTIC ARTERIES: ELECTROMECHANICAL COUPLING. Journal of Biomechanics, 2008, 41, S43.	0.9	0
99	Reentrant activity in a virtual 3D ventricular slab preparation subject to regional simulated ischemia: Role of the ischemic zone size. , 2008, , .		0
100	Anisotropic Wall Mechanics of Abdominal Aortic Aneurysms. , 2008, , .		0
101	Experimental Validation of a Computational Algorithm for the Zero Pressure Geometry Derivation of Blood Vessels. , 2013, , .		0
102	In silico simulations of experimental protocols for cardiac modeling. , 2014, 2014, 5695-8.		0
103	The role of purkinje automaticity as an arrhythmia mechanism in hyperkalaemia. , 2015, , .		0
104	Sustained reentry in a 3d regionally ischemic human heart. A simulation study. , 2015, , .		0
105	A Methodology to Improve Human Ventricular Models for the Investigation of Cardiac Arrhythmias. Biophysical Journal, 2017, 112, 403a.	0.2	0
106	Understanding Ventricular Tachyarrhythmias Related to Acute Myocardial Ischemia: A Computational Modeling Approach. IFMBE Proceedings, 2020, , 769-776.	0.2	0
107	Computational analysis of vulnerability to reentry in acute myocardial ischemia. , 0, , .		0
108	Fluid-Structure Interaction Applied to Blood Flow Simulations. , 2009, , 253-271.		0