Jose F Rodriguez Matas

List of Publications by Year
in descending order

108 papers	3,652 citations	126708 33 h-index	143772 57 g-index
111 all docs	111 docs citations	111 times ranked	3367 citing authors

#	Article	IF	Citations
1	Editorial: Atrial Fibrillation: Technology for Diagnosis, Monitoring, and Treatment. Frontiers in Physiology, 2022, 13, 848096.	1.3	1
2	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
3	Patient-specific multi-scale design optimization of transcatheter aortic valve stents. Computer Methods and Programs in Biomedicine, 2022, 221, 106912.	2.6	4
4	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
5	Self-expandable stent for thrombus removal modeling: Solid or beam finite elements?. Medical Engineering and Physics, 2022, 106, 103836.	0.8	4
6	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
7	In silico approaches for transcatheter aortic valve replacement inspection. Expert Review of Cardiovascular Therapy, 2021, 19, 61-70.	0.6	10
8	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
9	Applicability assessment of a stent-retriever thrombectomy finite-element model. Interface Focus, 2021, 11, 20190123.	1.5	39
10	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
11	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
12	A Comparison of Regional Classification Strategies Implemented for the Population Based Approach to Modelling Atrial Fibrillation. Mathematics, 2021, 9, 1686.	1.1	3
13	Impact of the Internal Carotid Artery Morphology on in silico Stent-Retriever Thrombectomy Outcome. Frontiers in Medical Technology, 2021, 3, 719909.	1.3	9
14	The first virtual patient-specific thrombectomy procedure. Journal of Biomechanics, 2021, 126, 110622.	0.9	25
15	Applicability analysis to evaluate credibility of an in silico thrombectomy procedure. Journal of Biomechanics, 2021, 126, 110631.	0.9	13
16	A computational optimization study of a self-expandable transcatheter aortic valve. Computers in Biology and Medicine, 2021, 139, 104942.	3.9	9
17	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
18	A mathematical model of healthy and dystrophic skeletal muscle biomechanics. Journal of the Mechanics and Physics of Solids, 2020, 134, 103747.	2.3	4

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19	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
20	A numerical investigationÂto evaluate the washout of blood compartments inÂa total artificial heart. Artificial Organs, 2020, 44, 976-986.	1.0	3
21	A complementary energy approach accommodates scale differences in soft tissues. Journal of the Mechanics and Physics of Solids, 2020, 138, 103895.	2.3	5
22	Understanding Ventricular Tachyarrhythmias Related to Acute Myocardial Ischemia: A Computational Modeling Approach. IFMBE Proceedings, 2020, , 769-776.	0.2	0
23	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
24	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
25	Personalized Corneal Biomechanics. , 2019, , 3-20.		1
26	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
27	Vulnerability in regionally ischemic human heart. Effect of the extracellular potassium concentration. Journal of Computational Science, 2018, 24, 160-168.	1.5	4
28	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
29	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
30	The Effect of Cell Morphology on the Permeability of the Nuclear Envelope to Diffusive Factors. Frontiers in Physiology, 2018, 9, 925.	1.3	20
31	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
32	Study on the Accuracy of Structural and FSI Heart Valves Simulations. Cardiovascular Engineering and Technology, 2018, 9, 723-738.	0.7	28
33	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
34	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
35	Towards the understanding of cytoskeleton fluidisationâ€"solidification regulation. Biomechanics and Modeling in Mechanobiology, 2017, 16, 1159-1169.	1.4	5
36	A Methodology to Improve Human Ventricular Models for the Investigation of Cardiac Arrhythmias. Biophysical Journal, 2017, 112, 403a.	0.2	0

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37	Evaluation of an aortic valve prosthesis: Fluid-structure interaction or structural simulation?. Journal of Biomechanics, 2017, 58, 45-51.	0.9	67
38	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
39	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
40	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
41	A two dimensional electromechanical model of a cardiomyocyte to assess intra-cellular regional mechanical heterogeneities. PLoS ONE, 2017, 12, e0182915.	1.1	5
42	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
43	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
44	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
45	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
46	A Methodology for the Derivation of Unloaded Abdominal Aortic Aneurysm Geometry With Experimental Validation. Journal of Biomechanical Engineering, 2016, 138, .	0.6	11
47	Automatized Patient-Specific Methodology for Numerical Determination of Biomechanical Corneal Response. Annals of Biomedical Engineering, 2016, 44, 1753-1772.	1.3	38
48	Detailed Anatomical and Electrophysiological Models of Human Atria and Torso for the Simulation of Atrial Activation. PLoS ONE, 2015, 10, e0141573.	1.1	77
49	Patient specific stress and rupture analysis of ascending thoracic aneurysms. Journal of Biomechanics, 2015, 48, 1836-1843.	0.9	55
50	The role of purkinje automaticity as an arrhythmia mechanism in hyperkalaemia. , 2015, , .		0
51	Sustained reentry in a 3d regionally ischemic human heart. A simulation study. , 2015, , .		0
52	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
53	On the Impact of Intraluminal Thrombus Mechanical Behavior in AAA Passive Mechanics. Annals of Biomedical Engineering, 2015, 43, 2253-2264.	1.3	26
54	MECHANICAL STRESS IN ABDOMINAL AORTIC ANEURYSMS USING ARTIFICIAL NEURAL NETWORKS. Journal of Mechanics in Medicine and Biology, 2015, 15, 1550029.	0.3	4

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55	GPU accelerated solver for nonlinear reaction–diffusion systems. Application to the electrophysiology problem. Computer Physics Communications, 2015, 196, 280-289.	3.0	24
56	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
57	Coupled Biomechanical Response of the Cornea Assessed by Non-Contact Tonometry. A Simulation Study. PLoS ONE, 2015, 10, e0121486.	1.1	72
58	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
59	In silico simulations of experimental protocols for cardiac modeling. , 2014, 2014, 5695-8.		0
60	A 3D electro-mechanical continuum model for simulating skeletal muscle contraction. Journal of Theoretical Biology, 2013, 335, 108-118.	0.8	44
61	Modeling the different sections of the cardiac conduction system to obtain realistic electrocardiograms. , 2013, 2013, 6846-9.		3
62	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
63	Experimental Validation of a Computational Algorithm for the Zero Pressure Geometry Derivation of Blood Vessels. , 2013, , .		0
64	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
65	mRNA Expression Levels in Failing Human Hearts Predict Cellular Electrophysiological Remodeling: A Population-Based Simulation Study. PLoS ONE, 2013, 8, e56359.	1.1	61
66	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
67	Dominant frequency and organization index maps in a realistic three-dimensional computational model of atrial fibrillation. Europace, 2012, 14, v25-v32.	0.7	16
68	Impact of Multiple Ionic Changes in Arrhythmic Risk Biomarkers in Human Ventricular Electrophysiology. Biophysical Journal, 2012, 102, 543a.	0.2	1
69	Modeling the Human Heart Under Acute Ischemia. Lecture Notes in Computational Vision and Biomechanics, 2012, , 81-103.	0.5	3
70	Interaction of Specialized Cardiac Conduction System With Antiarrhythmic Drugs: A Simulation Study. IEEE Transactions on Biomedical Engineering, 2011, 58, 3475-3478.	2.5	24
71	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
72	Mechanical characterization and numerical simulation of polyether–ether–ketone (PEEK) cranial implants. Journal of the Mechanical Behavior of Biomedical Materials, 2011, 4, 1819-1832.	1.5	70

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73	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
74	Verification of cardiac tissue electrophysiology simulators using an <i>N</i> -version benchmark. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2011, 369, 4331-4351.	1.6	253
75	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
76	Compact schemes for anisotropic reaction–diffusion equations with adaptive time step. International Journal for Numerical Methods in Engineering, 2010, 82, 1022-1043.	1.5	4
77	Numerical framework for patient–specific computational modelling of vascular tissue. International Journal for Numerical Methods in Biomedical Engineering, 2010, 26, 35-51.	1.0	42
78	Vulnerability for reentry in a three dimensional model of human atria: a simulation study. , 2010, 2010, 224-7.		7
79	Modeling Drug Effects on Personalized 3D Models of the Heart: A Simulation Study. Lecture Notes in Computer Science, 2010, , 222-231.	1.0	3
80	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
81	Fluid-Structure Interaction Applied to Blood Flow Simulations. , 2009, , 253-271.		0
82	An experimental study of the mouse skin behaviour: Damage and inelastic aspects. Journal of Biomechanics, 2008, 41, 93-99.	0.9	86
83	Nonlinear mechanical property of tracheal cartilage: A theoretical and experimental study. Journal of Biomechanics, 2008, 41, 1995-2002.	0.9	29
84	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
85	Fourth-order compact schemes with adaptive time step for monodomain reaction–diffusion equations. Journal of Computational and Applied Mathematics, 2008, 216, 39-55.	1.1	18
86	MYOGENIC RESPONSE IN ELASTIC ARTERIES: ELECTROMECHANICAL COUPLING. Journal of Biomechanics, 2008, 41, S43.	0.9	0
87	Mechanical Stresses in Abdominal Aortic Aneurysms: Influence of Diameter, Asymmetry, and Material Anisotropy. Journal of Biomechanical Engineering, 2008, 130, 021023.	0.6	136
88	Oscillatory regime in excitatory media with global coupling: Application to cardiac dynamics. , 2008, , .		2
89	Post-repolarization refractoriness in human ventricular cardiac cells. , 2008, , .		5
90	Reentrant activity in a virtual 3D ventricular slab preparation subject to regional simulated ischemia: Role of the ischemic zone size. , 2008, , .		0

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91	Anisotropic Wall Mechanics of Abdominal Aortic Aneurysms. , 2008, , .		0
92	Vulnerability to reentry in a 3D regionally ischemic ventricular slab preparation: A simulation study. , 2007, , .		1
93	Structural damage models for fibrous biological soft tissues. International Journal of Solids and Structures, 2007, 44, 5894-5911.	1.3	65
94	A constitutive model for fibrous tissues considering collagen fiber crimp. International Journal of Non-Linear Mechanics, 2007, 42, 391-402.	1.4	77
95	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
96	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
97	Buried Pipe Modeling With Initial Imperfections. Journal of Pressure Vessel Technology, Transactions of the ASME, 2004, 126, 250-257.	0.4	16
98	Mechanical behavior of acrylonitrile butadiene styrene fused deposition materials modeling. Rapid Prototyping Journal, 2003, 9, 219-230.	1.6	215
99	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
100	An interactive multiobjective optimization design strategy for decision based multidisciplinary design. Engineering Optimization, 2002, 34, 523-544.	1.5	23
101	New Sequential and Parallel Derivative-Free Algorithms for Unconstrained Minimization. SIAM Journal on Optimization, 2002, 13, 79-96.	1.2	53
102	Mechanical behavior of acrylonitrile butadiene styrene (ABS) fused deposition materials. Experimental investigation. Rapid Prototyping Journal, 2001, 7, 148-158.	1.6	292
103	Sequential approximate optimization using variable fidelity response surface approximations. Structural and Multidisciplinary Optimization, 2001, 22, 24-34.	1.7	80
104	Trust region model management in multidisciplinary design optimization. Journal of Computational and Applied Mathematics, 2000, 124, 139-154.	1.1	68
105	Characterization of the mesostructure of fusedâ€deposition acrylonitrileâ€butadieneâ€styrene materials. Rapid Prototyping Journal, 2000, 6, 175-186.	1.6	176
106	Convergence of trust region augmented Lagrangian methods using variable fidelity approximation data. Structural Optimization, 1998, 15, 141-156.	0.7	95
107	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
108	Computational analysis of vulnerability to reentry in acute myocardial ischemia. , 0, , .		0