Natalia A Trayanova

List of Publications by Year
in descending order

304	13,757	15495 65	33869 99
papers	citations	h-index	g-index
316	316	316	7342
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	A Novel Rule-Based Algorithm for Assigning Myocardial Fiber Orientation to Computational Heart Models. Annals of Biomedical Engineering, 2012, 40, 2243-2254.	1.3	399
2	Whole-Heart Modeling. Circulation Research, 2011, 108, 113-128.	2.0	306
3	Arrhythmia risk stratification of patients after myocardial infarction using personalized heart models. Nature Communications, 2016, 7, 11437.	5.8	302
4	Patient-derived models link re-entrant driver localization in atrial fibrillation to fibrosis spatial pattern. Cardiovascular Research, 2016, 110, 443-454.	1.8	244
5	Computational models in cardiology. Nature Reviews Cardiology, 2019, 16, 100-111.	6.1	239
6	Computational techniques for solving the bidomain equations in three dimensions. IEEE Transactions on Biomedical Engineering, 2002, 49, 1260-1269.	2.5	204
7	Feasibility of image-based simulation to estimate ablation target in human ventricular arrhythmia. Heart Rhythm, 2013, 10, 1109-1116.	0.3	184
8	Personalized virtual-heart technology for guiding the ablation of infarct-related ventricular tachycardia. Nature Biomedical Engineering, 2018, 2, 732-740.	11.6	184
9	A Computational Model to Predict the Effects of Class I Anti-Arrhythmic Drugs on Ventricular Rhythms. Science Translational Medicine, 2011, 3, 98ra83.	5.8	183
10	Computational Medicine: Translating Models to Clinical Care. Science Translational Medicine, 2012, 4, 158rv11.	5.8	171
11	Computationally guided personalized targeted ablation of persistent atrial fibrillation. Nature Biomedical Engineering, 2019, 3, 870-879.	11.6	170
12	Plakophilin-2 is required for transcription of genes that control calcium cycling and cardiac rhythm. Nature Communications, 2017, 8, 106.	5.8	149
13	Optogenetic defibrillation terminates ventricular arrhythmia in mouse hearts and human simulations. Journal of Clinical Investigation, 2016, 126, 3894-3904.	3.9	148
14	Models of cardiac electromechanics based on individual hearts imaging data. Biomechanics and Modeling in Mechanobiology, 2011, 10, 295-306.	1.4	145
15	The role of cardiac tissue structure in defibrillation. Chaos, 1998, 8, 221-233.	1.0	139
16	Myofiber Architecture of the Human Atria as Revealed by Submillimeter Diffusion Tensor Imaging. Circulation: Arrhythmia and Electrophysiology, 2016, 9, e004133.	2.1	137
17	The Role of Fibroblasts in Complex Fractionated Electrograms During Persistent/Permanent Atrial Fibrillation. Circulation Research, 2012, 110, 275-284.	2.0	136
18	Intermittent drivers anchoring to structural heterogeneities as a major pathophysiological mechanism of human persistent atrial fibrillation. Journal of Physiology, 2016, 594, 2387-2398.	1.3	132

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19	Differences Between Left and Right Ventricular Chamber Geometry Affect Cardiac Vulnerability to Electric Shocks. Circulation Research, 2005, 97, 168-175.	2.0	130
20	K⁺current changes account for the rate dependence of the action potential in the human atrial myocyte. American Journal of Physiology - Heart and Circulatory Physiology, 2009, 297, H1398-H1410.	1.5	129
21	From mitochondrial ion channels to arrhythmias in the heart: computational techniques to bridge the spatio-temporal scales. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2008, 366, 3381-3409.	1.6	126
22	Automatically Generated, Anatomically Accurate Meshes for Cardiac Electrophysiology Problems. IEEE Transactions on Biomedical Engineering, 2009, 56, 1318-1330.	2.5	124
23	Electrotonic Coupling between Human Atrial Myocytes and Fibroblasts Alters Myocyte Excitability and Repolarization. Biophysical Journal, 2009, 97, 2179-2190.	0.2	122
24	Virtual Electrophysiological Study of Atrial Fibrillation in Fibrotic Remodeling. PLoS ONE, 2015, 10, e0117110.	1.1	122
25	Modelling methodology of atrial fibrosis affects rotor dynamics and electrograms. Europace, 2016, 18, iv146-iv155.	0.7	120
26	Susceptibility to Arrhythmia in the Infarcted Heart Depends on Myofibroblast Density. Biophysical Journal, 2011, 101, 1307-1315.	0.2	118
27	Imageâ€based models of cardiac structure in health and disease. Wiley Interdisciplinary Reviews: Systems Biology and Medicine, 2010, 2, 489-506.	6.6	113
28	Mechanistic Inquiry into the Role of Tissue Remodeling in Fibrotic Lesions in Human Atrial Fibrillation. Biophysical Journal, 2013, 104, 2764-2773.	0.2	113
29	Methodology for patient-specific modeling of atrial fibrosis as a substrate for atrial fibrillation. Journal of Electrocardiology, 2012, 45, 640-645.	0.4	112
30	Mechanisms of Mechanically Induced Spontaneous Arrhythmias in Acute Regional Ischemia. Circulation Research, 2010, 106, 185-192.	2.0	111
31	Towards predictive modelling of the electrophysiology of the heart. Experimental Physiology, 2009, 94, 563-577.	0.9	110
32	Relationship Between Fibrosis Detected onÂLateÂGadolinium-Enhanced CardiacÂMagnetic Resonance and Re-EntrantÂActivity Assessed WithÂElectrocardiographic Imaging inÂHumanÂPersistent Atrial Fibrillation. JACC: Clinical Electrophysiology, 2018, 4, 17-29.	1.3	109
33	Reentry in a Morphologically Realistic Atrial Model. Journal of Cardiovascular Electrophysiology, 2001, 12, 1046-1054.	0.8	107
34	A comprehensive multiscale framework for simulating optogenetics in the heart. Nature Communications, 2013, 4, 2370.	5.8	104
35	Caveolin-3 regulates compartmentation of cardiomyocyte beta2-adrenergic receptor-mediated cAMP signaling. Journal of Molecular and Cellular Cardiology, 2014, 67, 38-48.	0.9	103
36	Cardiac Electromechanical Models: From Cell to Organ. Frontiers in Physiology, 2011, 2, 43.	1.3	102

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37	Mechanisms of Human Atrial Fibrillation Initiation. Circulation: Arrhythmia and Electrophysiology, 2012, 5, 1149-1159.	2.1	102
38	The effect of vagally induced dispersion of action potential duration on atrial arrhythmogenesis. Heart Rhythm, 2004, 1, 334-344.	0.3	101
39	Microdomain-Specific Modulation of L-Type Calcium Channels Leads to Triggered Ventricular Arrhythmia in Heart Failure. Circulation Research, 2016, 119, 944-955.	2.0	101
40	Roles of Electric Field and Fiber Structure in Cardiac Electric Stimulation. Biophysical Journal, 1999, 77, 1404-1417.	0.2	96
41	Action Potential Dynamics Explain Arrhythmic Vulnerability in Human Heart Failure. Journal of the American College of Cardiology, 2008, 52, 1782-1792.	1.2	96
42	Artificial Intelligence and Machine Learning in Arrhythmias and Cardiac Electrophysiology. Circulation: Arrhythmia and Electrophysiology, 2020, 13, e007952.	2.1	96
43	Virtual electrode polarization in the far field: implications for external defibrillation. American Journal of Physiology - Heart and Circulatory Physiology, 2000, 279, H1055-H1070.	1.5	94
44	Computer simulations of cardiac defibrillation: a look inside the heart. Computing and Visualization in Science, 2002, 4, 259-270.	1.2	94
45	Distribution of Electromechanical Delay in the Heart: Insights from a Three-Dimensional Electromechanical Model. Biophysical Journal, 2010, 99, 745-754.	0.2	94
46	Three-Dimensional Models of Individual Cardiac Histoanatomy: Tools and Challenges. Annals of the New York Academy of Sciences, 2006, 1080, 301-319.	1.8	89
47	A numerically efficient model for simulation of defibrillation in an active bidomain sheet of myocardium. Mathematical Biosciences, 2000, 166, 85-100.	0.9	87
48	Modeling Cardiac Ischemia. Annals of the New York Academy of Sciences, 2006, 1080, 395-414.	1.8	87
49	Mathematical Approaches to Understanding and Imaging Atrial Fibrillation. Circulation Research, 2014, 114, 1516-1531.	2.0	87
50	Defibrillation of the heart: insights into mechanisms from modelling studies. Experimental Physiology, 2006, 91, 323-337.	0.9	84
51	Feasibility of using patient-specific models and the â€œminimum cutâ€• algorithm to predict optimal ablation targets for left atrial flutter. Heart Rhythm, 2016, 13, 1687-1698.	0.3	84
52	Tachycardia in Post-Infarction Hearts: Insights from 3D Image-Based Ventricular Models. PLoS ONE, 2013, 8, e68872.	1.1	84
53	Verification of cardiac mechanics software: benchmark problems and solutions for testing active and passive material behaviour. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2015, 471, 20150641.	1.0	80
54	Synthesis of Voltage-Sensitive Optical Signals: Application to Panoramic Optical Mapping. Biophysical Journal, 2006, 90, 2938-2945.	0.2	79

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55	Image-Based Estimation of Ventricular Fiber Orientations for Personalized Modeling of Cardiac Electrophysiology. IEEE Transactions on Medical Imaging, 2012, 31, 1051-1060.	5.4	77
56	Association of Left Atrial Local Conduction Velocity With Late Gadolinium Enhancement on Cardiac Magnetic Resonance in Patients With Atrial Fibrillation. Circulation: Arrhythmia and Electrophysiology, 2016, 9, e002897.	2.1	77
57	Image-based models of cardiac structure with applications in arrhythmia and defibrillation studies. Journal of Electrocardiology, 2009, 42, 157.e1-157.e10.	0.4	75
58	Minimum Information about a Cardiac Electrophysiology Experiment (MICEE): Standardised reporting for model reproducibility, interoperability, and data sharing. Progress in Biophysics and Molecular Biology, 2011, 107, 4-10.	1.4	75
59	Electromechanical models of the ventricles. American Journal of Physiology - Heart and Circulatory Physiology, 2011, 301, H279-H286.	1.5	74
60	Arrhythmogenesis in the heart: Multiscale modeling of the effects of defibrillation shocks and the role of electrophysiological heterogeneity. Chaos, 2007, 17, 015103.	1.0	71
61	The Role of Photon Scattering in Optical Signal Distortion during Arrhythmia and Defibrillation. Biophysical Journal, 2007, 93, 3714-3726.	0.2	71
62	Tunnel Propagation of Postshock Activations as a Hypothesis for Fibrillation Induction and Isoelectric Window. Circulation Research, 2008, 102, 737-745.	2.0	69
63	Asymmetry in Membrane Responses to Electric Shocks: Insights from Bidomain Simulations. Biophysical Journal, 2004, 87, 2271-2282.	0.2	67
64	Systems Approach to Understanding Electromechanical Activity in the Human Heart. Circulation, 2008, 118, 1202-1211.	1.6	66
65	Preprocedure Application of Machine Learning and Mechanistic Simulations Predicts Likelihood of Paroxysmal Atrial Fibrillation Recurrence Following Pulmonary Vein Isolation. Circulation: Arrhythmia and Electrophysiology, 2020, 13, e008213.	2.1	65
66	Sensitivity of reentrant driver localization to electrophysiological parameter variability in image-based computational models of persistent atrial fibrillation sustained by a fibrotic substrate. Chaos, 2017, 27, 093932.	1.0	64
67	Success and Failure of the Defibrillation Shock:.. Journal of Cardiovascular Electrophysiology, 2000, 11, 785-796.	0.8	63
68	Effects of Regional Mitochondrial Depolarization on Electrical Propagation. Circulation: Arrhythmia and Electrophysiology, 2014, 7, 143-151.	2.1	60
69	Mathematical simulations of ligand-gated and cell-type specific effects on the action potential of human atrium. Progress in Biophysics and Molecular Biology, 2008, 98, 161-170.	1.4	59
70	Universal atrial coordinates applied to visualisation, registration and construction of patient specific meshes. Medical Image Analysis, 2019, 55, 65-75.	7.0	59
71	Effect of stretch-activated channels on defibrillation efficacy. Heart Rhythm, 2004, 1, 67-77.	0.3	57
72	Induction of ventricular arrhythmias following mechanical impact: A simulation study in 3D. Journal of Molecular Histology, 2004, 35, 679-686.	1.0	56

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73	Terminating ventricular tachyarrhythmias using far-field low-voltage stimuli: Mechanisms and delivery protocols. Heart Rhythm, 2013, 10, 1209-1217.	0.3	56
74	A computational approach to understanding the cardiac electromechanical activation sequence in the normal and failing heart, with translation to the clinical practice of CRT. Progress in Biophysics and Molecular Biology, 2012, 110, 372-379.	1.4	55
75	Accuracy of prediction of infarct-related arrhythmic circuits from image-based models reconstructed from low and high resolution MRI. Frontiers in Physiology, 2015, 6, 282.	1.3	55
76	Modeling defibrillation: Effects of fiber curvature. Journal of Electrocardiology, 1998, 31, 23-29.	0.4	54
77	Imaging-Based Simulations for Predicting Sudden Death and Guiding Ventricular Tachycardia Ablation. Circulation: Arrhythmia and Electrophysiology, 2017, 10, .	2.1	54
78	Fatigue-related changes in motor unit action potentials of adult cats. Muscle and Nerve, 1992, 15, 138-150.	1.0	53
79	Mapping of cardiac electrical activation with electromechanical wave imaging: An in silicoâ€“in vivo reciprocity study. Heart Rhythm, 2011, 8, 752-759.	0.3	53
80	Cardiac vulnerability to electric shocks during phase 1A of acute global ischemia. Heart Rhythm, 2004, 1, 695-703.	0.3	52
81	Rate-dependent action potential alternans in human heart failure implicates abnormal intracellular calcium handling. Heart Rhythm, 2010, 7, 1093-1101.	0.3	51
82	Role of Virtual Electrodes in Arrhythmogenesis: Pinwheel Experiment Revisited. Journal of Cardiovascular Electrophysiology, 2000, 11, 274-285.	0.8	50
83	Virtual Electrodeâ€Induced Positive and Negative Graded Responses:. Journal of Cardiovascular Electrophysiology, 2003, 14, 756-763.	0.8	50
84	Mechanisms for initiation of reentry in acute regional ischemia phase 1B. Heart Rhythm, 2010, 7, 379-386.	0.3	50
85	Multi-scale Modeling of the Cardiovascular System: Disease Development, Progression, and Clinical Intervention. Annals of Biomedical Engineering, 2016, 44, 2642-2660.	1.3	50
86	A feasibility study of arrhythmia risk prediction in patients with myocardial infarction and preserved ejection fraction. Europace, 2016, 18, iv60-iv66.	0.7	49
87	Towards personalized computational modelling of the fibrotic substrate for atrial arrhythmia. Europace, 2016, 18, iv136-iv145.	0.7	49
88	Submillimeter diffusion tensor imaging and late gadolinium enhancement cardiovascular magnetic resonance of chronic myocardial infarction. Journal of Cardiovascular Magnetic Resonance, 2016, 19, 9.	1.6	49
89	Cardiac Optogenetics: 2018. JACC: Clinical Electrophysiology, 2018, 4, 155-167.	1.3	49
90	Upper limit of vulnerability in a defibrillation model of the rabbit ventricles. Journal of Electrocardiology, 2003, 36, 51-56.	0.4	48

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91	Exploring susceptibility to atrial and ventricular arrhythmias resulting from remodeling of the passive electrical properties in the heart: a simulation approach. Frontiers in Physiology, 2014, 5, 435.	1.3	48
92	Machine Learning in Arrhythmia and Electrophysiology. Circulation Research, 2021, 128, 544-566.	2.0	48
93	Phase Singularities and Termination of Spiral Wave Reentry. Journal of Cardiovascular Electrophysiology, 2002, 13, 672-679.	0.8	47
94	Computational models of atrial fibrillation: achievements, challenges, and perspectives for improving clinical care. Cardiovascular Research, 2021, 117, 1682-1699.	1.8	47
95	Virtual electrode effects in defibrillation. Progress in Biophysics and Molecular Biology, 1998, 69, 387-403.	1.4	46
96	Effect of acute global ischemia on the upper limit of vulnerability: a simulation study. American Journal of Physiology - Heart and Circulatory Physiology, 2004, 286, H2078-H2088.	1.5	46
97	Advances in modeling ventricular arrhythmias: from mechanisms to the clinic. Wiley Interdisciplinary Reviews: Systems Biology and Medicine, 2014, 6, 209-224.	6.6	46
98	Termination of Spiral Waves with Biphasic Shocks: Role of Virtual Electrode Polarization. Journal of Cardiovascular Electrophysiology, 2000, 11, 1386-1396.	0.8	45
99	Effects of Mechano-Electric Feedback on Scroll Wave Stability in Human Ventricular Fibrillation. PLoS ONE, 2013, 8, e60287.	1.1	45
100	Opsin spectral sensitivity determines the effectiveness of optogenetic termination of ventricular fibrillation in the human heart: a simulation study. Journal of Physiology, 2016, 594, 6879-6891.	1.3	45
101	Constructing a Human Atrial Fibre Atlas. Annals of Biomedical Engineering, 2021, 49, 233-250.	1.3	45
102	Artificial intelligence in the diagnosis and management of arrhythmias. European Heart Journal, 2021, 42, 3904-3916.	1.0	45
103	Myocardial ischemia lowers precordial thump efficacy: An inquiry into mechanisms using three-dimensional simulations. Heart Rhythm, 2006, 3, 179-186.	0.3	44
104	Comparison of the effects of continuous and pulsatile left ventricular-assist devices on ventricular unloading using a cardiac electromechanics model. Journal of Physiological Sciences, 2012, 62, 11-19.	0.9	43
105	How computer simulations of the human heart can improve antiâ€arrhythmia therapy. Journal of Physiology, 2016, 594, 2483-2502.	1.3	43
106	Lack of regional association between atrial late gadolinium enhancement on cardiac magnetic resonance and atrial fibrillation rotors. Heart Rhythm, 2016, 13, 654-660.	0.3	43
107	Arrhythmogenic propensity of the fibrotic substrate after atrial fibrillation ablation: a longitudinal study using magnetic resonance imaging-based atrial models. Cardiovascular Research, 2019, 115, 1757-1765.	1.8	43
108	Arrhythmic sudden death survival prediction using deep learning analysis of scarring in the heart. , 2022, 1, 334-343.		43

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109	Reversible Cardiac Conduction Block and Defibrillation with High-Frequency Electric Field. Science Translational Medicine, 2011, 3, 102ra96.	5.8	42
110	Threeâ€dimensional mechanisms of increased vulnerability to electric shocks in myocardial infarction: Altered virtual electrode polarizations and conduction delay in the periâ€infarct zone. Journal of Physiology, 2012, 590, 4537-4551.	1.3	42
111	Placement of implantable cardioverterâ€defibrillators in paediatric and congenital heart defect patients: a pipeline for model generation and simulation prediction of optimal configurations. Journal of Physiology, 2013, 591, 4321-4334.	1.3	41
112	Disrupted Calcium Release as a Mechanism for Atrial Alternans Associated with Human Atrial Fibrillation. PLoS Computational Biology, 2014, 10, e1004011.	1.5	41
113	Myocardial Infarct Segmentation From Magnetic Resonance Images for Personalized Modeling of Cardiac Electrophysiology. IEEE Transactions on Medical Imaging, 2016, 35, 1408-1419.	5.4	41
114	Effects of Electroporation on the Transmembrane Potential Distribution in a Two-Dimensional Bidomain Model of Cardiac Tissue. Journal of Cardiovascular Electrophysiology, 1999, 10, 701-714.	0.8	40
115	Association of left atrial epicardial adipose tissue with electrogram bipolar voltage and fractionation: Electrophysiologic substrates for atrial fibrillation. Heart Rhythm, 2016, 13, 2333-2339.	0.3	40
116	Early somatic mosaicism is a rare cause of long-QT syndrome. Proceedings of the National Academy of Sciences of the United States of America, 2016, 113, 11555-11560.	3.3	39
117	Differences between left and right ventricular anatomy determine the types of reentrant circuits induced by an external electric shock. A rabbit heart simulation study. Progress in Biophysics and Molecular Biology, 2006, 90, 399-413.	1.4	38
118	Optogenetics-enabled assessment of viral gene and cell therapy for restoration of cardiac excitability. Scientific Reports, 2015, 5, 17350.	1.6	38
119	Imageâ€based reconstruction of threeâ€dimensional myocardial infarct geometry for patientâ€specific modeling of cardiac electrophysiology. Medical Physics, 2015, 42, 4579-4590.	1.6	38
120	Mechanisms Underlying Isovolumic Contraction and Ejection Peaks in Seismocardiogram Morphology. Journal of Medical and Biological Engineering, 2012, 32, 103.	1.0	38
121	Models of stretch-activated ventricular arrhythmias. Journal of Electrocardiology, 2010, 43, 479-485.	0.4	37
122	Tunnel propagation following defibrillation with ICD shocks: Hidden postshock activations in the left ventricular wall underlie isoelectric window. Heart Rhythm, 2010, 7, 953-961.	0.3	36
123	Modeling Defibrillation of the Heart: Approaches and Insights. IEEE Reviews in Biomedical Engineering, 2011, 4, 89-102.	13.1	36
124	Computational cardiology: how computer simulations could be used to develop new therapies and advance existing ones. Europace, 2012, 14, v82-v89.	0.7	36
125	Ventricular arrhythmia risk prediction in repaired Tetralogy of Fallot using personalized computational cardiac models. Heart Rhythm, 2020, 17, 408-414.	0.3	35
126	Predicting risk of sudden cardiac death in patients with cardiac sarcoidosis using multimodality imaging and personalized heart modeling in a multivariable classifier. Science Advances, 2021, 7, .	4.7	35

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127	Photon scattering effects in optical mapping of propagation and arrhythmogenesis in the heart. Journal of Electrocardiology, 2007, 40, S75-S80.	0.4	34
128	Unstable QT Interval Dynamics Precedes Ventricular Tachycardia Onset in Patients With Acute Myocardial Infarction. Circulation: Arrhythmia and Electrophysiology, 2011, 4, 858-866.	2.1	34
129	Optogenetics-enabled dynamic modulation of action potential duration in atrial tissue: feasibility of a novel therapeutic approach. Europace, 2014, 16, iv69-iv76.	0.7	34
130	Comparing Reentrant Drivers Predicted by Image-Based Computational Modeling and Mapped by Electrocardiographic Imaging in Persistent Atrial Fibrillation. Frontiers in Physiology, 2018, 9, 414.	1.3	34
131	Virtual Electrode Polarization Leads to Reentry in the Far Field. Journal of Cardiovascular Electrophysiology, 2001, 12, 946-956.	0.8	33
132	Substrate Spatial Complexity Analysis for the Prediction of Ventricular Arrhythmias in Patients With Ischemic Cardiomyopathy. Circulation: Arrhythmia and Electrophysiology, 2020, 13, e007975.	2.1	33
133	What have we learned from mathematical models of defibrillation and postshock arrhythmogenesis? Application of bidomain simulations. Heart Rhythm, 2006, 3, 1232-1235.	0.3	32
134	â€œBeauty is a light in the heartâ€: The transformative potential of optogenetics for clinical applications in cardiovascular medicine1. Trends in Cardiovascular Medicine, 2015, 25, 73-81.	2.3	32
135	Quantifying the uncertainty in model parameters using Gaussian process-based Markov chain Monte Carlo in cardiac electrophysiology. Medical Image Analysis, 2018, 48, 43-57.	7.0	32
136	Somato-dendritic mechanisms underlying the electrophysiological properties of hypothalamic magnocellular neuroendocrine cells: A multicompartmental model study. Journal of Computational Neuroscience, 2007, 23, 143-168.	0.6	31
137	Image-based left ventricular shape analysis for sudden cardiac death risk stratification. Heart Rhythm, 2014, 11, 1693-1700.	0.3	31
138	The Fibrotic Substrate in Persistent Atrial Fibrillation Patients: Comparison Between Predictions From Computational Modeling and Measurements From Focal Impulse and Rotor Mapping. Frontiers in Physiology, 2018, 9, 1151.	1.3	31
139	Effect of Strength and Timing of Transmembrane Current Pulses on Isolated Ventricular Myocytes. Journal of Cardiovascular Electrophysiology, 2001, 12, 1129-1137.	0.8	30
140	Regional cooling facilitates termination of spiral-wave reentry through unpinning of rotors in rabbit hearts. Heart Rhythm, 2012, 9, 107-114.	0.3	30
141	Role of 3-Dimensional Architecture of Scar and Surviving Tissue in Ventricular Tachycardia. Circulation: Arrhythmia and Electrophysiology, 2018, 11, e006131.	2.1	30
142	Mechanoâ€electric and mechanoâ€chemoâ€transduction in cardiomyocytes. Journal of Physiology, 2020, 598, 1285-1305.	1.3	30
143	Shock-induced arrhythmogenesis in the myocardium. Chaos, 2002, 12, 962-972.	1.0	28
144	Mechanistic inquiry into decrease in probability of defibrillation success with increase in complexity of preshock reentrant activity. American Journal of Physiology - Heart and Circulatory Physiology, 2004, 286, H909-H917.	1.5	28

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145	A New MRI-Based Model of Heart Function with Coupled Hemodynamics and Application to Normal and Diseased Canine Left Ventricles. Frontiers in Bioengineering and Biotechnology, 2015, 3, 140.	2.0	28
146	Computational modeling of cardiac optogenetics: Methodology overview & review of findings from simulations. Computers in Biology and Medicine, 2015, 65, 200-208.	3.9	27
147	Mechanistic investigation into the arrhythmogenic role of transmural heterogeneities in regional ischaemia phase 1A. Europace, 2007, 9, vi46-vi58.	0.7	26
148	Computational Cardiology: The Heart of the Matter. ISRN Cardiology, 2012, 2012, 1-15.	1.6	26
149	Personalized imaging and modeling strategies for arrhythmia prevention and therapy. Current Opinion in Biomedical Engineering, 2018, 5, 21-28.	1.8	26
150	Sensitivity of Ablation Targets Prediction to Electrophysiological Parameter Variability in Image-Based Computational Models of Ventricular Tachycardia in Post-infarction Patients. Frontiers in Physiology, 2019, 10, 628.	1.3	26
151	Electromechanical modeling of human ventricles with ischemic cardiomyopathy: numerical simulations in sinus rhythm and under arrhythmia. Computers in Biology and Medicine, 2021, 136, 104674.	3.9	26
152	Spiral Wave Control by a Localized Stimulus:. A Bidomain Model Study. Journal of Cardiovascular Electrophysiology, 2004, 15, 226-233.	0.8	25
153	Comparative analysis of three different modalities for characterization of the seismocardiogram. , 2009, 2009, 2899-903.		25
154	Defibrillation success with high frequency electric fields is related to degree and location of conduction block. Heart Rhythm, 2013, 10, 740-748.	0.3	25
155	The role of mechanoelectric feedback in vulnerability to electric shock. Progress in Biophysics and Molecular Biology, 2008, 97, 461-478.	1.4	24
156	Efficient preloading of the ventricles by a properly timed atrial contraction underlies stroke work improvement in the acute response to cardiac resynchronization therapy. Heart Rhythm, 2013, 10, 1800-1806.	0.3	24
157	Personalized Digital-Heart Technology for Ventricular Tachycardia Ablation Targeting in Hearts With Infiltrating Adiposity. Circulation: Arrhythmia and Electrophysiology, 2020, 13, e008912.	2.1	23
158	Mechanisms of Sinoatrial Node Dysfunction in Heart Failure With Preserved Ejection Fraction. Circulation, 2022, 145, 45-60.	1.6	23
159	Influence of Anisotropy on Local and Global Measures of Potential Gradient in Computer Models of Defibrillation. Annals of Biomedical Engineering, 1998, 26, 840-849.	1.3	22
160	Sodium Current Reduction Unmasks a Structure-Dependent Substrate for Arrhythmogenesis in the Normal Ventricles. PLoS ONE, 2014, 9, e86947.	1.1	22
161	Optimizing cardiac resynchronization therapy to minimize ATP consumption heterogeneity throughout the left ventricle: A simulation analysis using a canine heart failure model. Heart Rhythm, 2014, 11, 1063-1069.	0.3	22
162	Initiation of a High-Frequency JetÂVentilation Strategy for CatheterÂAblation for Atrial Fibrillation. JACC: Clinical Electrophysiology, 2018, 4, 1519-1525.	1.3	22

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163	The role of personalized atrial modeling in understanding atrial fibrillation mechanisms and improving treatment. International Journal of Cardiology, 2019, 287, 139-147.	0.8	22
164	Effects of the tissue-bath interface on the induced transmembrane potential: A modeling study in cardiac stimulation. Annals of Biomedical Engineering, 1997, 25, 783-792.	1.3	21
165	Mechanistic insight into prolonged electromechanical delay in dyssynchronous heart failure: a computational study. American Journal of Physiology - Heart and Circulatory Physiology, 2013, 305, H1265-H1273.	1.5	21
166	A comprehensive, multiscale framework for evaluation of arrhythmias arising from cell therapy in the whole post-myocardial infarcted heart. Scientific Reports, 2019, 9, 9238.	1.6	21
167	Computational Identification of Ventricular Arrhythmia Risk in Pediatric Myocarditis. Pediatric Cardiology, 2019, 40, 857-864.	0.6	21
168	Whole-heart ventricular arrhythmia modeling moving forward: Mechanistic insights and translational applications. Biophysics Reviews, 2021, 2, .	1.0	21
169	Optimal ECG-lead selection increases generalizability of deep learning on ECG abnormality classification. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2021, 379, 20200258.	1.6	21
170	The role of mechano-electric feedbacks and hemodynamic coupling in scar-related ventricular tachycardia. Computers in Biology and Medicine, 2022, 142, 105203.	3.9	21
171	Reentry in survived subepicardium coupled to depolarized and inexcitable midmyocardium: Insights into arrhythmogenesis in ischemia phase 1B. Heart Rhythm, 2008, 5, 1036-1044.	0.3	20
172	A Novel Methodology for Assessing the Bounded-Input Bounded-Output Instability in QT Interval Dynamics: Application to Clinical ECG With Ventricular Tachycardia. IEEE Transactions on Biomedical Engineering, 2012, 59, 2111-2117.	2.5	20
173	Computational analysis of the effect of valvular regurgitation on ventricular mechanics using a 3D electromechanics model. Journal of Physiological Sciences, 2015, 65, 159-164.	0.9	20
174	Mechanisms of arrhythmogenesis related to calcium-driven alternans in a model of human atrial fibrillation. Scientific Reports, 2016, 6, 36395.	1.6	20
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