Patrick M Boyle

List of Publications by Year
in descending order

71 papers	2,794 citations	147801 31 h-index	189892 50 g-index
77 all docs	77 docs citations	77 times ranked	2375 citing authors

#	Article	IF	Citations
1	Patient-derived models link re-entrant driver localization in atrial fibrillation to fibrosis spatial pattern. Cardiovascular Research, 2016, 110, 443-454.	3.8	244
2	Personalized virtual-heart technology for guiding the ablation of infarct-related ventricular tachycardia. Nature Biomedical Engineering, 2018, 2, 732-740.	22.5	184
3	Computationally guided personalized targeted ablation of persistent atrial fibrillation. Nature Biomedical Engineering, 2019, 3, 870-879.	22.5	170
4	Optogenetic defibrillation terminates ventricular arrhythmia in mouse hearts and human simulations. Journal of Clinical Investigation, 2016, 126, 3894-3904.	8.2	148
5	Relationship Between Fibrosis Detected onÂLateÂGadolinium-Enhanced CardiacÂMagnetic Resonance and Re-EntrantÂActivity Assessed WithÂElectrocardiographic Imaging inÂHumanÂPersistent Atrial Fibrillation. JACC: Clinical Electrophysiology, 2018, 4, 17-29.	3.2	109
6	Insulation of a synthetic hydrogen metabolism circuit in bacteria. Journal of Biological Engineering, 2010, 4, 3.	4.7	108
7	A comprehensive multiscale framework for simulating optogenetics in the heart. Nature Communications, 2013, 4, 2370.	12.8	104
8	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.	0.7	84
9	Image-based models of cardiac structure with applications in arrhythmia and defibrillation studies. Journal of Electrocardiology, 2009, 42, 157.e1-157.e10.	0.9	75
10	Effects of the Purkinje System and Cardiac Geometry on Biventricular Pacing: A Model Study. Annals of Biomedical Engineering, 2010, 38, 1388-1398.	2.5	72
11	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.	2.5	64
12	Universal atrial coordinates applied to visualisation, registration and construction of patient specific meshes. Medical Image Analysis, 2019, 55, 65-75.	11.6	59
13	Arrhythmogenesis by single ectopic beats originating in the Purkinje system. American Journal of Physiology - Heart and Circulatory Physiology, 2010, 299, H1002-H1011.	3.2	49
14	Modeling the Role of the Coronary Vasculature During External Field Stimulation. IEEE Transactions on Biomedical Engineering, 2010, 57, 2335-2345.	4.2	49
15	Towards personalized computational modelling of the fibrotic substrate for atrial arrhythmia. Europace, 2016, 18, iv136-iv145.	1.7	49
16	Cardiac Optogenetics: 2018. JACC: Clinical Electrophysiology, 2018, 4, 155-167.	3.2	49
17	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.	2.8	48
18	Dantrolene Improves Survival After Ventricular Fibrillation by Mitigating Impaired Calcium Handling in Animal Models. Circulation, 2014, 129, 875-885.	1.6	47

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19	Advances in modeling ventricular arrhythmias: from mechanisms to the clinic. Wiley Interdisciplinary Reviews: Systems Biology and Medicine, 2014, 6, 209-224.	6.6	46
20	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.	2.9	45
21	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.	3.8	43
22	Arrhythmogenic mechanisms of the Purkinje system during electric shocks: A modeling study. Heart Rhythm, 2009, 6, 1782-1789.	0.7	41
23	Stochastic spontaneous calcium release events trigger premature ventricular complexes by overcoming electrotonic load. Cardiovascular Research, 2015, 107, 175-183.	3.8	41
24	Purkinje-mediated Effects in the Response of Quiescent Ventricles to Defibrillation Shocks. Annals of Biomedical Engineering, 2010, 38, 456-468.	2.5	39
25	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.	7.1	39
26	Optogenetics-enabled assessment of viral gene and cell therapy for restoration of cardiac excitability. Scientific Reports, 2015, 5, 17350.	3.3	38
27	An Intuitive Safety Factor for Cardiac Propagation. Biophysical Journal, 2010, 98, L57-L59.	0.5	36
28	Computational cardiology: how computer simulations could be used to develop new therapies and advance existing ones. Europace, 2012, 14, v82-v89.	1.7	36
29	Ventricular arrhythmia risk prediction in repaired Tetralogy of Fallot using personalized computational cardiac models. Heart Rhythm, 2020, 17, 408-414.	0.7	35
30	Optogenetics-enabled dynamic modulation of action potential duration in atrial tissue: feasibility of a novel therapeutic approach. Europace, 2014, 16, iv69-iv76.	1.7	34
31	Comparing Reentrant Drivers Predicted by Image-Based Computational Modeling and Mapped by Electrocardiographic Imaging in Persistent Atrial Fibrillation. Frontiers in Physiology, 2018, 9, 414.	2.8	34
32	Fibrosis, atrial fibrillation and stroke: clinical updates and emerging mechanistic models. Heart, 2021, 107, 99-105.	2.9	33
33	Critical appraisal of technologies to assess electrical activity during atrial fibrillation: a position paper from the European Heart Rhythm Association and European Society of Cardiology Working Group on eCardiology in collaboration with the Heart Rhythm Society, Asia Pacific Heart Rhythm Society, Latin American Heart Rhythm Society and Computing in Cardiology. Europace, 2022, 24, 313-330.	1.7	33
34	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.	4.9	32
35	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.	2.8	31
36	Computational modeling of cardiac optogenetics: Methodology overview & review of findings from simulations. Computers in Biology and Medicine, 2015, 65, 200-208.	7.0	27

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37	Personalized imaging and modeling strategies for arrhythmia prevention and therapy. Current Opinion in Biomedical Engineering, 2018, 5, 21-28.	3.4	26
38	Transmural IK(ATP) heterogeneity as a determinant of activation rate gradient during early ventricular fibrillation: Mechanistic insights from rabbit ventricular models. Heart Rhythm, 2013, 10, 1710-1717.	0.7	25
39	Fusion during entrainment of orthodromic reciprocating tachycardia is enhanced for basal pacing sites but diminished when pacing near Purkinje system end points. Heart Rhythm, 2013, 10, 444-451.	0.7	22
40	Sodium Current Reduction Unmasks a Structure-Dependent Substrate for Arrhythmogenesis in the Normal Ventricles. PLoS ONE, 2014, 9, e86947.	2.5	22
41	A comprehensive, multiscale framework for evaluation of arrhythmias arising from cell therapy in the whole post-myocardial infarcted heart. Scientific Reports, 2019, 9, 9238.	3.3	21
42	Computational Identification of Ventricular Arrhythmia Risk in Pediatric Myocarditis. Pediatric Cardiology, 2019, 40, 857-864.	1.3	21
43	New insights on the cardiac safety factor: Unraveling the relationship between conduction velocity and robustness of propagation. Journal of Molecular and Cellular Cardiology, 2019, 128, 117-128.	1.9	20
44	Near-real-time simulations of biolelectric activity in small mammalian hearts using graphical processing units. , 2009, 2009, 3290-3.		19
45	See the light: can optogenetics restore healthy heartbeats? And, if it can, is it really worth the effort?. Expert Review of Cardiovascular Therapy, 2014, 12, 17-20.	1.5	18
46	Personalized computational heart models with T1-mapped fibrotic remodeling predict sudden death risk in patients with hypertrophic cardiomyopathy. ELife, 2022, 11, .	6.0	18
47	Arrhythmia dynamics in computational models of the atria following virtual ablation of re-entrant drivers. Europace, 2018, 20, iii45-iii54.	1.7	17
48	The Purkinjeâ€“myocardial junction is the anatomic origin of ventricular arrhythmia in CPVT. JCI Insight, 2022, 7, .	5.0	16
49	Using personalized computer models to custom-tailor ablation procedures for atrial fibrillation patients: are we there yet?. Expert Review of Cardiovascular Therapy, 2017, 15, 339-341.	1.5	15
50	Termination of reâ€entrant atrial tachycardia via optogenetic stimulation with optimized spatial targeting: insights from computational models. Journal of Physiology, 2018, 596, 181-196.	2.9	15
51	Optogenetic Stimulation Using Anion Channelrhodopsin (GtACR1) Facilitates Termination of Reentrant Arrhythmias With Low Light Energy Requirements: A Computational Study. Frontiers in Physiology, 2021, 12, 718622.	2.8	13
52	Computational rabbit models to investigate the initiation, perpetuation, and termination of ventricular arrhythmia. Progress in Biophysics and Molecular Biology, 2016, 121, 185-194.	2.9	12
53	Personalizing therapy for atrial fibrillation: the role of stem cell and in silico disease models. Cardiovascular Research, 2018, 114, 931-943.	3.8	12
54	Simulations of Reduced Conduction Reserve in the Diabetic Rat Heart: Response to Uncoupling and Reduced Excitability. Annals of Biomedical Engineering, 2010, 38, 1415-1425.	2.5	11

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55	Calcium Dynamics and Cardiac Arrhythmia. Clinical Medicine Insights: Cardiology, 2017, 11, 117954681773952.	1.8	11
56	Assessment of arrhythmia mechanism and burden of the infarcted ventricles following remuscularization with pluripotent stem cell-derived cardiomyocyte patches using patient-derived models. Cardiovascular Research, 2022, 118, 1247-1261.	3.8	11
57	OptoGap is an optogenetics-enabled assay for quantification of cellâ€“cell coupling in multicellular cardiac tissue. Scientific Reports, 2021, 11, 9310.	3.3	11
58	Computational modeling identifies embolic stroke of undetermined source patients with potential arrhythmic substrate. ELife, 2021, 10, .	6.0	11
59	Characterization of the Electrophysiologic Remodeling of Patients With Ischemic Cardiomyopathy by Clinical Measurements and Computer Simulations Coupled With Machine Learning. Frontiers in Physiology, 2021, 12, 684149.	2.8	10
60	Light-based Approaches to Cardiac Arrhythmia Research: From Basic Science to Translational Applications. Clinical Medicine Insights: Cardiology, 2016, 10s1, CMC.S39711.	1.8	7
61	Translational applications of computational modelling for patients with cardiac arrhythmias. Heart, 2021, 107, 456-461.	2.9	7
62	Characterizing the arrhythmogenic substrate in personalized models of atrial fibrillation: sensitivity to mesh resolution and pacing protocol in AF models. Europace, 2021, 23, i3-i11.	1.7	7
63	Identifying risk of adverse outcomes in COVID-19 patients via artificial intelligenceâ€“powered analysis of 12-lead intake electrocardiogram. Cardiovascular Digital Health Journal, 2022, 3, 62-74.	1.3	5
64	Dynamic voltage threshold adjusted substrate modification technique for complex atypical atrial flutters with varying circuits. PACE - Pacing and Clinical Electrophysiology, 2020, 43, 1273-1280.	1.2	4
65	Behaviour of the Purkinje System During Defibrillation-Strength Shocks. Annual International Conference of the IEEE Engineering in Medicine and Biology Society, 2007, 2007, 419-22.	0.5	3
66	Propagating unstable wavelets in cardiac tissue. Physical Review E, 2012, 85, 011909.	2.1	2
67	Leave the light on: chronic optogenetic tachypacing of human engineered cardiac tissue constructs. Cardiovascular Research, 2020, 116, 1405-1406.	3.8	1
68	The Purkinje System and Cardiac Geometry: Assessing Their Influence on the Paced Heart. Lecture Notes in Computer Science, 2009, , 68-77.	1.3	1
69	A New Safety Factor Formulation for Cardiac Propagation. , 2010, , .		0
70	Cardiac Arrhythmias: Mechanistic Knowledge and Innovation from Computer Models. Modeling, Simulation and Applications, 2015, , 1-27.	1.3	0
71	Modeling the Aging Heart. , 2018, , 345-355.		0